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## The Review of Metaphysics

A Philosophical Quarterly

Edited by ...

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### THE REVIEW OF METAPHYSICS

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### THE NATURE OF LIFE \*

The nature of life can be considered from two points of view, that of the individual living organism, and that of the species of living organisms. I wish to consider it first from the point of view of the individual, to see what sort of behavior is characteristic of life, and secondly from the point of view of the species, to see what sort of relationship is characteristic of life.

I

### THE INDIVIDUAL

As to the individual, the property which distinguishes a living body from an inanimate one has been defined in various ways — as growth, for example, or irritability, or spontaneity, or organization. All these properties are included in a less precise but more general concept. That is the concept of freedom. By freedom I do not mean indeterminism, and I am not suggesting the presence of any sort of indeterminism anywhere. By freedom I mean behavior which is determined by the inner structure of the behaving individual rather than by the outer forces acting on him. A living body is free in a way in which an inanimate body never is. An inanimate body reacts to forces, but a living body responds to stimuli, and that is something quite different. A response is occasioned

<sup>\*</sup> A paper read at the second annual meeting of the Metaphysical Society of America, February 24, 1951, at Barnard College, New York City.

by a stimulus, but the nature of the response is determined primarily by the inner structure of the organism.

Even inanimate bodies, to be sure, have a certain amount of freedom. Insofar as they are definite things they maintain their integrity against the tendency to be reabsorbed into the Indefinite. Even a gas preserves its mass, a liquid preserves also its volume, and a solid preserves even its shape, in the face of a hostile environment. But the motion of an inanimate body is determined by the outer forces acting on it. This fact is formulated by the classical laws of motion. The law of inertia states that a body left to its own devices will not change its motion. The law of force states that a body not left to its own devices will change its motion in a direction and to an extent determined by the imposed force. The law of reaction states that a body will not kick back any harder than it is kicked.

Living organisms, on the other hand, have very little respect for the laws of physics. Life defies the law of inertia. An animal waking up from sleep will get up and walk off without being pushed. Life defies the law of force. A small stimulus may produce a large acceleration. Life defies the law of reaction. A physicist who kicks a mule may get a surprise if he expects the reaction to be equal to the action. Life defies the law of conservation of energy. The energy in an atomic nucleus is finite, but the energy in a living cell is incalculable. Life defies the law of conservation of mass. "You can count the grains in a bushel of wheat, but you cannot count the bushels in a grain of wheat." Life defies the law of gravitation. Stones roll only downhill, but animals climb uphill. Life defies the second law of thermodynamics. The inanimate world evolves toward greater homogeneity, but life evolves toward greater heterogeneity.

This defiance is not absolute. It would hardly do to stop breathing in defiance of the law of conservation of energy or to jump out of the window in defiance of the law of gravitation. To a large extent the behavior of living organisms is in accordance with the mechanical laws of the physical world. But it is not completely in accordance with these laws. When

an organism begins to behave completely in accordance with the laws of physics, that is what we call death.

To say that the behavior of a living organism is not in accordance with the laws of physics does not mean that this behavior is lawless or random. It means that it is determined by a different sort of law, the laws of life. These are the physiological laws of growth, response, and conditioning which describe the behavior of living beings. Action in accordance with such laws is action determined primarily by the inner structure of the body. In this sense it is free action, and such free action is what constitutes life.

If it is true that freedom is the essence of life, it follows that there are degrees of life, because there are degrees of freedom. If a body is free when its behavior is determined by its inner structure, then it is still more free when its behavior is determined by some more inner part, some peculiarly personal part, of its whole structure. Such higher freedom is fuller life. This is found in animals, which possess not only life but also consciousness. Where there is consciousness there is volition, and where there is volition there is voluntary behavior. An animal's behavior is determined partly by the laws of physics and partly by the laws of physiology but also partly by its own mind. Just as life defies the laws of mechanics, so mind defies the laws of physiology. An animal acting voluntarily acts other than it would have acted had its behavior been determined by materialistic laws, either physical or physiological, alone. If we identify our selves with our minds rather than with our bodies, such action is freer because determined by that which is more inner and personal than even the structure of the body. Voluntary control of the body in defiance of physiological laws is not lawless, but is determined by a different sort of law, the laws of mind. These are the purely psychological laws of association of ideas, in accordance with which our ideas are associated in a pattern determined by the contiguity of the corresponding perceptions in our experience. These are laws of thinking, and when our thinking determines our acting we are free, and consequently alive, in a higher and fuller sense.

A still higher degree of freedom, freedom even from psychological laws, is attained by those animals which are not only conscious but also rational. A very small part of our thinking is rational, but that part is very different, because reason defies the laws of association. When we think rationally, instead of associating ideas in accordance with the accidental contiguities they have had in our experience, we associate them in accordance with their own intrinsic relations. Such thinking, freed from the laws of association, is determined by the laws of logic. Insofar as we identify our selves with our reasoning rather than with our sense perception, this rational thinking, and the voluntary behavior determined by it, is more personal, more inner. In acting rationally we are more free and so more fully alive.

Freedom from the laws of logic is attained by faith, which exalts belief above reason. Faith is an act of will not justifiable by reason. The conclusions we reach by faith are different from the conclusions we would have reached by reason alone. and the voluntary behavior determined by such conclusions is different from what our behavior would have been without them. Faith defies the laws of logic, but it does not defy law as such, for it has its own laws. Even dogmatic theology has a certain method in its madness, and believers, while they disagree with rationalists, agree with each other. Not perfectly, of course, since faith, like everything else in the world, is imperfect. Life itself has its diseases which keep the organism from being perfectly alive. Likewise consciousness is subject to illusions, reason is subject to fallacies, and faith is subject to heresies. The difference between reason and faith is not that one is more infallible than the other, but that one is an act of the intellect and the other an act of the will - not an act of the will on the body but an act of the will on thought itself. Since we identify our selves most closely with our wills, which express our real egos, rather than with other aspects of the mind, the control of thought by will is control by that which is most inner and personal. Faith, then, makes us still more free.

Freedom from faith is attained in mystical contemplation. Direct intuition makes voluntary belief superfluous, and ineffable vision makes any verbal creed inadequate. Contemplation defies the laws of theology and frees the mystic from dependence on church or scripture. Subject instead to the inner law of love, he attains a peculiar self-sufficiency which is the highest freedom and the fullest life.

Each of these stages — life, mind, reason, faith, contemplation — represents behavior less determined by outer forces and more determined by inner structure. Determinism from within is freedom and life. Determinism from deeper within is greater freedom and more abundant life.

### H

### THE SPECIES

The second problem, the nature of a species of living organisms, involves the theory of universals. A biological species is not a universal in the realist sense, because there is no eternal archetype to which its members conform, since the species itself evolves in time. But neither is it a universal only in the nominalist or conceptualist sense, because its members have a genetic relationship which makes the species an objective reality. It is a universal in the sense of being a class of members each one of which is what it is because of its origin out of previously existing members of the class. The individual has no existence apart from the species in which it is born, and the species has no existence apart from the individuals which compose it. The species exists prior to any of its individuals, but it does not exist prior to all of them.

For this reason a species of living organisms differs radically from a species of artifacts on the one hand or from a species of natural but inanimate beings on the other. An artifact comes into existence through the purposeful imposition of a preconceived form on some matter. An inanimate natural object comes into existence through the working of mechanical forces. But a living organism comes into existence out of another similar organism. The essence of an artifact is purpose. The essence of an inanimate natural object is matter. But the essence of an organism is freedom. A species of arti-

facts is a Platonic idea existing prior to and independently of all its individuals, which are what they are by participation in it and are judged more or less perfect by comparison with it. A species of inanimate natural things has no unity except the subjective concept which groups them together because of superficial similarities which happen to be of interest to us. But a species of living organisms is a class of things related to each other both by similarity and by birth.

In the case of living organisms, consequently, the species is all important. We derive our existence from the class out of which we arise. We derive our essence from the class, membership in which makes us what we are. Living things have a peculiar and essential dependence on other members of their kind, as non-living things do not. This dependence is the differentia of life. Life can be defined as existence as an individual by virtue of having arisen out of another similar individual.

Higher forms of life are characterized by even greater dependence. A plant, while dependent on its parents for its origin, may attain a certain isolation once it has sprouted. It is dependent on its environment for its nourishment, but aside from that it can ignore its environment. A conscious animal must be aware of its environment in the most literal sense. The sensations which are the material of its consciousness come to it from without. The psychic world of sensations, feelings, and thoughts, already existing before any individual mind, acquires a new focus in the form of a new mind. This is so whatever theories we may hold about the source of the mind. Whether it be derived from sense perception, inherited categories of understanding, the racial unconscious, karmic influences from past incarnations, recollection of ideas contemplated between incarnations, or division of the world soul. it derives both its existence and its essence from the greater source. The alternative would be spontaneous generation of thought, which is just as impossible as spontaneous generation of life. Mind involves a peculiar and essential dependency on something outside ourselves.

Reason involves still greater dependency. To think rationally requires having abstract concepts, to have abstract concepts requires having words, and to have words requires learning them from a teacher. Language does not arise spontaneously. To be rational animals we must be educated by teachers themselves previously educated. By education we are members of a cultural society, which is a class of cultured individuals each deriving his culture from other individuals already in that society. Just as the existence of any living organism implies the existence of an infinite number of others, its ancestors, so the existence of a rational man implies the existence of an infinite number of other rational men, his predecessors. Rational animals are consequently much less independent than other animals. They require not only parents to generate them and sensible objects to stimulate them but also teachers to educate them, for reason derives from linguistic education the abstract concepts which are the elements of rational thought.

Faith means still greater dependency. To believe is to accept a truth inaccessible to our own rational insight on the authority of somebody else. A conscious animal gets simple ideas from its environment by sensation, and then constructs complex ideas from them. A rational man gets ready-made complex ideas from his environment, in the form of words, and then makes propositions about them either by association or by reason. But a faithful believer gets ready-made propositions from his environment, in the form of dogmas. Conversion, the beginning of belief, is regeneration in a church. A church is just as organic as a species or a society. It is a class of believers each of whom acquires his belief from somebody already a member of that class. There is no such thing as spontaneous generation of faith, any more than there is spontaneous generation of reasoning without learned concepts. spontaneous generation of consciousness without sense perceptions, or spontaneous generation of life without parents. Belief is essentially dependent on external authority.

But the most complete dependency is mystical contemplation. This is not spontaneous either, for only love begets love. Mysticism, the rule of love, is the final renunciation of independence. Its literature abounds in expressions of self-abasement, submission to the will of God, and absorption into the being of God. The mystic no longer asserts a claim to individuality. Whether he expresses his state theistically as union with God or pantheistically as identity with the all, he finds his whole essence in the bond which unites him with the universal Source of all things.

We see, then, that life, consciousness, reason, faith, and contemplation are characterized by increased dependence of the individual on a universal — a universal not as an archetype or a concept but as a class, inclusion in which is the very essence of the individual. If such dependency is the criterion of life, greater dependency is fuller life.

### III

### CONCLUSION

Our two conclusions, then, are that life is freedom and that life is dependency. The less we are free, the more we are free. What are we to make of this paradox?

The key to the paradox is the principle that liberty is obedience to law. If this is true, we become more free not by having less law but by having more law. The motion of a lifeless meteorite in interstellar space, responsive to no influences except gravitational forces, is completely random from its own point of view, for it does not know what forces it will encounter, but from outside its motion is easily predictable. A tree grows upward in accordance with the law of its own nature, but from outside its growth seems rather complicated. An animal knows what it is doing, but to others its behavior seem erratic. Rational thought pursues a fixed course following logical laws, but it eludes the propagandist trying to control it by psychological means. The thinking and behavior of a man of faith follow simple principles, but seem absurd to outsiders. The mystic's course is obvious to him. but for others it may be so anomalous as to seem miraculous. Determinism from within means certainty as viewed from within but unpredictability as viewed from without. Since unpredictability is ignorance of law, the more law any individual is subject to, the more unpredictable his behavior must be. Free behavior is unpredictable from without not because it is undetermined but because it is rigidly determined from within. The more I know what I am going to do, the less you know it.

A law is a formula describing the behavior of a kind or class of beings. The more groups we belong to, the more laws we are subject to. The laws of physiology, of association, of logic, of theology, and of love are systems of laws characterizing classes of beings. The law of the class explains the behavior of the individual.

The key to the nature of life, consequently, is not the theory of individuals but the theory of universals. Neither realism, which applies to artifacts, nor nominalism, which applies to the inanimate things of nature, can describe the relation of an organism to its species. The living species is a class of members which have not joined it but have been produced by it through a process of division. A baby is not born into a family; he is born out of the family. The species produces a new organism by generation. The mental world produces a new mind by coming to a focus. Society produces a new citizen by education. The church produces a new saint by diffusion of grace. God produces a new mystic by creating a new reflection of himself. In each case the universal law determines the individual behavior because membership in the universal is what makes the individual what it is. And in each case the individual is dependent on other individuals not externally or accidentally but genetically, by a relation on which its very existence as that sort of individual depends.

The less we are free, the more we are free — but in a different sense. Freedom is characteristic of a living being's behavior. Lack of freedom is characteristic of a living being's relation to other individuals of its kind. The more we are alive the more we are free in that our behavior is determined by our

inner nature. The less we are alive the more we are free in that we are separated from our fellows. Such separation is isolation rather than freedom. Life is existence by virtue of membership in a class, that is, life is non-isolation, and fuller life is greater non-isolation. The conclusion of the whole discussion is that life is freedom and life is non-isolation. The less we are isolated, the more we are free.

GEORGE BOSWORTH BURCH

Tufts College.

### THE DOCTRINE OF NECESSITY RE-EXAMINED

1

Today, three quarters of a century after having been challenged by Emile Boutroux's affirmation of real contingency in nature, the doctrine of necessary causal connection still represents a dividing line separating minds not only in philosophy, but also in psychology, biology and physics. The persistent efforts which are being made to interpret the most recent results in physics in a way which would save the classical principle of causality indicate the presence of a fixed deep-seated belief possessing the strength and emotional intensity common to all prejudices. What more than a half century ago was called by John Dewey "the superstition of necessity" still dominates the number of intellectually honest thinkers who are sincerely convinced that any revision of the classical principle of causality would bring about the "ruin of science" and "suicide of reason." It is this cherished "doctrine of necessity" which induced such philosophers as Léon Brunschwicg and Hans Driesch to distrust the implications of modern physical theories.1 The philosophically minded physicists have pointed out that the opposition to the correct interpretation of Heisenberg's principle stems mainly from the philosophical faith according to which every probability in nature is of subjective origin, being always nothing but a gap in our knowledge and never "a gap in the order of nature." 2 This only shows that a fruitful discussion of the

<sup>&</sup>lt;sup>1</sup> L. Brunschwicg, La physique du vingtième siècle et la philosophie Paris, Hermann & Cie, 1936 (Actualités scientifiques et industrielles, No. 445); "Science et prise de conscience" (Scientia, Annus XXX, vol. LX, p. 334). Driesch expressed his negative attitude toward modern physics in his book Relativitätstheorie und Weltanschaung, 1930 and in his address "Naturwissenschaft und Philosophie" given at the philosophical congress at Prague in 1934.

<sup>&</sup>lt;sup>2</sup> Jean-Louis Destouches, *Physique moderne et la philosophie*, Paris, Hermann & Cie, 1939, p. 39-40; Louis de Broglie, "Léon Brunschwicg et l'évolution des sciences," *Revue de Métaphysique et de Morale*, 1945.

physical principle of causality is hardly possible without a preliminary analysis of the underlying concept of causal necessity itself. The problem is obviously of wider scope and significance than the present discussion in physics indicates. Nevertheless it is true that this discussion succeeded where the previous efforts of Renouvier, Cournot, Bergson, Peirce, Dewey and James failed, especially among the scientists: it again focussed the attention of philosophers and scientists on the problem of causality and showed that the necessitarian dogma is, to put it mildly, less justified than was generally believed.

We shall realize better the strength of the general human belief in the idea of necessary connection, if we remember that it is as old as human speculative thought itself. We find it at the very dawn of Western thought, stated explicitly and unambiguously by Democritus: "By necessity are foreordained all things that were and are and are to come." Twenty-two centuries later Laplace in the famous and frequently quoted passage of his *Théorie analytique de la probabilité* expressed the same strictly deterministic view based on essentially the same corpuscular-kinetic conception of the universe as that of Democritus:

An intellect which at a given instant knew all the forces with which nature is animated, and the respective situations of the beings that compose nature — supposing the said intellect were vast enough to subject these data to analysis — would embrace in the same formula the motions of the greatest bodies in the universe and those of the slightest atoms: nothing would be uncertain for it, and the future, like the past, would be present to its eyes. §

The only difference between Democritus and Laplace was that mechanics of the nineteenth century had an incomparably more efficient, more complex and more accurate equipment at its disposal than the Greek atomists. It was this difference to which the more precise form of Laplace's statement as well as his emphasis on prediction was due. Only purely human limitations prevent us from extending accurate mathematical

<sup>3</sup> Œuvres complètes, vol. VII, Paris 1886, p. 6.

anticipation of events to the whole universe and its future history. This is the reason why the mind of an astronomer predicting accurately the date of eclipses is, according to Laplace, only a "faint replica" of the universal omniscient intellect.

Laplace's formula was frequently quoted and several times restated in a more concrete and colorful way in order to make it fully clear that not only all details of inorganic nature, but also even the most specific and apparently the most "contingent" occurrences of human history are necessary parts of one and the same network of causes and effects. According to Du Bois Reymond, the Laplacean intellect from its immense all-embracing system of simultaneous differential equations would be able to derive the most insignificant details as well as the most decisive and important events of history, no matter whether they are located in "the past" or in "the future"; thus he would know whether the sky was cloudy on the day when Pericles embarked in Piraeus for Epidaurus, when the Greek orthodox cross will be posted on the top of the mosque of St. Sophia at Constantinople, or when Great Britain will burn the last piece of its coal.4 Obviously, social history was thus conceived as a special case of physical history. The human body and its nervous system is nothing but a very complex organization of the same elementary atoms as those present in so-called inorganic nature, and Hyppolite Taine was only consistent in extending the Laplacean formula to the "nervous particles" as well.5 This idea of rigid determinism penetrated even into the literature where the topic "It could not have been otherwise" became very popular. To name only two famous examples: Tolstoi's philosophical epilogue to War

<sup>&</sup>lt;sup>4</sup> E. Du Bois Reymond, "Über die Grenzen des Naturerkennens," in Wissenschaftliche Vorträge, edited by James H. Gore, Boston & London, 1896, p. 38. The original date of this address (1872) explains the belief in the coming conquest of Constantinople by Russians.

<sup>&</sup>lt;sup>5</sup> H. Taine, De l'intelligence, I, p. 173: "Au mieux, en supposant la science complète, on entrevoit une formule mathématique, capable de résumer en une loi les diverses positions et relations de toutes les particules nerveuses."

and Peace is inspired by the same idea of universal predetermination as the speeches of Dr. Socrates in Anatole France's L'Histoire Comique who claimed that the whole cosmical past conspired to make the suicide of M. Chevalier necessary: "The human mechanism is only a particular instance of the universal mechanism." 6

It would be, however, a mistake to associate the necessitarian theory exclusively with the mechanistic or naturalistic view of nature. The evidence of belief in complete determination of the future can be found in many idealistic systems. Long before Laplace, Leibniz was convinced that a sufficiently powerful and deep insight into "the inner parts of Being" would provide us with ability to see the future in the present "as in a mirror." Immanuel Kant, a celebrated defender of human freedom, in one passage of his Critique of Practical Reason applied the Laplacean formula before Laplace not only to the human body, but even to an individual human mind. This will appear less paradoxical, if we remember that it followed directly from Kant's insistence of applying the category of

<sup>6 &</sup>quot;To call upon a poor wretch to answer for his actions! Why, even when the solar system was still no more than a pale nebula, forming, in the ether, a fragile halo, whose circumference was a thousand times greater than the orbit of Neptune; we had all of us, for ages past, been fully conditioned, determined, and irrevocably destined, and your responsibility, my responsibility, Chevalier's and that of all men, had been not mitigated, but abolished beforehand. All our movements, the results of previous movements of matter, are subject to the laws which govern the cosmic forces, and the human mechanism is merely a particular instance of the universal mechanism." (A Mummer's Tale. The Works of Anatole France in English Translation. Edited by J. Lewis and Bernard Niall. Vol. XXIX, p. 118.)

<sup>7 &</sup>quot;Von dem Verhängnisse," Hauptschriften II, p. 129 (quoted by E. Cassirer in Determinismus und Indeterminismus in der modern Physik, p. 17).

<sup>8</sup> Kant, Critique of Practical Reason, translated by T. K. Abbot, p. 193: "It may therefore be admitted that if it were possible to have so profound an insight into a man's mental character as shown by internal as well as by external occasions that can influence them, we could calculate a man's conduct for the future with as great certainty as a lunar or solar eclipse..."

causality, conceived, of course, in the classical necessitarian fashion, not only to the physical world but also to the "world of inner experience," both being treated by him on the same "phenomenal" level. Even Fichte, the philosopher of the "Absolute Ego," did not hesitate to assert complete predictability of the inner states as well as their complete determination: "All that I am and that I shall be, I am and I shall be in necessary fashion and it is impossible for me to be something else." <sup>9</sup> Friedrich Paulsen, a representative of Neo-Kantianism, apparently disrespectfully, but consistently applied the Laplacean pattern of explanation to the mind of his master himself:

The omniscient physiologist ... would explain the author of the Critique of Pure Reason just as he would explain a clock-work. In consequence of this particular arrangement of the brain-cells and of their interconnection with each other and the motor-nerves, certain stimuli exciting the retina and the tactile nerves of the fingers had to occasion certain movements, which are in no wise different from those of a writing automaton or a music-box. 10

It is obvious that the doctrine of psycho-physical parallelism in eliminating the possibility of any interaction between consciousness and matter found the most welcome support in the Kantian claim that the category of causality should be applied rigorously to the material processes, including the neural processes in the head of the sage of Königsberg. But even the opponents of the parallelist doctrine were not always opposed to the necessitarian hypothesis; Hans Driesch, although opposing mechanical explanation in biology, was very outspoken in drawing a sharp line between vitalism and indeterminism; in one passage of his Die Philosophie des

<sup>&</sup>lt;sup>9</sup> J. G. Fichte, Die Bestimmung des Menschen (Sämmtliche Werke, Berlin, 1845, II, 182-3): "Dieser mein Zusammenhang mit dem Naturganzen ist es, der das bestimmt, alles was ich war, was ich bin und was ich sein werde und derselbe Geist würde aus jedem möglichen Momente meines Daseins unfehlbar folgen können, was ich vir demselben gewesen sei, und was ich nach demselben sein werde. Alles was ich ja bin und werde, bin ich und werde ich schlechthin notwending, und es ist unmöglich, das ich etwas anderes sei."

<sup>&</sup>lt;sup>10</sup> F. Paulsen, Introduction to Philosophy, translated by F. Thilly, New York, 1898, p. 88.

Organischen he claims the possibility of complete prediction of the future course of the world in truly Laplacean fashion provided that the present state of inorganic nature plus the present states of all entelechies and psychoids is completely and unambiguously known.<sup>11</sup> We could have hardly a more revealing illustration showing that necessitarianism is not a feature belonging exclusively to a mechanical or materialistic conception of reality. It is evident that the doctrine of absolute necessity implying integral predetermination of the future is a far more general trend in philosophy, common to naturalism as well as to idealism, at least in their classical forms.

A short glance at the history of philosophy shows that this conclusion is less paradoxical than it may appear. Necessitarianism appeared three times in the history of Western thought. We have already linked the name of Democritus with the name of Laplace, thus indicating that the modern version of strict determinism was in all essential features a revival of its first Greek form. Although the distance between the purely speculative atomism of the Abderite and the empirically established atomism of Dalton and of the kinetic theory of matter is great, the agreements in essential points far outweigh the differences in details. Even the differences in method are less conspicuous if we take into consideration the speculative origins of modern atomism in the seventeenth century and its historical connections with Democritus and Lucretius. Reality was conceived by modern as well as by ancient atomists as made of qualitatively homogeneous particles moving through empty space according to the fixed laws of mechanics; the differences of quality were explained by dif-

<sup>11 &</sup>quot;Eine höchste Vernunft, welche mit allen Tatsachen der anorganischen Natur bekannt wäre und auch alle intensive Mannigfaltigkeit aller Entelechien und Psychoide, einschliesslich der individuellen Geschichte der letzteren, kennen würde, wäre imstande, die Handlungen eines Psychoids mit absoluter Sicherheit vorauszusagen. Eine solche Voraussage wäre ihr ebenso möglich wie im Gebiete der reinen Mechanik, für welches diese Wahrheit bekanntlich in der Fiction des 'Laplaceschen Geistes' ihre Ausdruck gefunden hat." (Die Philosophie des Organischen, p. 290. Italics mine.)

ferences in configuration 12 and every change was interpreted as a displacement not affecting the atoms themselves which remain eternally the same; every contingency and novelty was conceived as purely subjective and without having any locus in "the nature of the things." In the period separating Democritus from "Democritus reviviscens" 13 another form of necessitarianism cropped up in the theological doctrine of predestination. It was hardly less rigid than its Greek predecessor and its modern mathematico-naturalistic replica; all verbal concessions made by the theologians to the notion of liberum arbitrium were inspired by considerations essentially foreign to the doctrine itself and as incompatible with it as Lucretius' "clinamen" was with the logic of the original atomism of Democritus. The modern doctrine of absolute necessity is thus, in the words of Charles Hartshorne, a result of the "secret alliance" between theological and naturalistic determinism.14

This convergence of two lines of thought which are apparently so different today will appear less strange, if traced to their common source; both spring in the last analysis from the Eleatic doctrine of Being as immutable and single. The kinship of Eleatic monism and Greek atomism is generally recognized: it was Democritus who smashed the Parmenidean sphere into small bits and scattered them over the empty space where they moved along their predetermined paths. The Eleatic conservation of Being thus became the law of conservation of matter — which was fairly accurately anticipated by

<sup>12</sup> Although the atomism of Dalton was qualitative, it was always hoped that the qualitative differences between the chemical elements were not irreducible, but were due in the last analysis to the differences of configuration of the more elementary particles. Spencer, Comte and Wundt shared this belief, while the hypothesis of the origin of all elements from hydrogen was proposed by Prout as early as in 1815 (E. Meyerson, Identité et Réalité, 4th edition, Paris, 1932, pp. 266-68). The electron theory of matter fulfilled these expectations.

<sup>&</sup>lt;sup>13</sup> The name of the book published by Joannes Chrysostomus Magnenus in Italy in 1646.

<sup>14</sup> C. Hartshorne, "Contingency and the New Era in Metaphysics," Journal of Philosophy, XXIX, p. 429.

the ancient atomists - and the law of equivalence of cause and effect stated generally, but accurately, in the famous saying of Lucretius "a nihilo nil fit." Only confusion in cosmological ideas prevented the correct anticipation of the laws of mechanics, especially the law of inertia. The connection between Eleatic monism and Western theology is less transparent, although no less real. There is no place here for a more detailed historical analysis; the main outline will be, I hope, sufficient. It can hardly be denied that the fusion of the idea of God with that of the Eleatic One, first proposed by Euclides of Megara and then accepted by Plato and Plotinus, left an ineffacable mark on the formation of the Western theology. In spite of all differences between Aristotelianism and Neo-Platonism, the idea of God has essentially the same Eleatic features in both systems; that is why all prominent Christian philosophers like St. Augustine, Johannes Scotus Eriugena, St. Anselm and St. Thomas had a tendency to conceive God as a single, timeless and indivisible Being whose perfection is precisely due to its immutability. For every change was conceived as a corruption unworthy of pure and perfect Being. Unquestionably, the difficulties, especially religious difficulties, which they faced were enormous and it is almost pathetic to see for instance St. Thomas trying desperately to reinject life and personality into his static divine substance in order to narrow the gap between the abstract and dead "Ens" and the living God of the Bible and the early Christians. 15 By identifying God with timeless Being, the

<sup>15</sup> See The Summa Theologica of St. Thomas Aquinas, part I, especially Q. IX, Art. 1, where God is conceived to be altogether immutable and Q. XVIII. Art. 3 where it is claimed that life can be properly attributed to God. These obviously contradictory propositions are reconciled in purely verbal fashion, the life of God being defined as "movement by itself and to itself." Similarly, by his will and love God wills and loves his own essence (QQ. XIX,XX); his self-will and self-love are hardly more than metaphorical expressions for timeless identity of his own substance which posits itself eternally. St. Thomas himself quotes Aristotle's Ethics: "God rejoices by an operation that is one and simple" (Q. XX, Art. 1) and thus anticipates almost verbatim the proposition of Spinoza's Ethics: "Deus se ipsum amore intellectuali infinito amat" (Ethica, V, prop. XXXV).

theologians consistently put even his wisdom and knowledge beyond time. His knowledge, being not limited by time, is necessarily foreknowledge as well; it embraces the past, present and future in his timeless insight of eternal wisdom; all temporal distinctions disappear in the omniscient unity of his "Eternal Now." Foreknowledge implies predestination; the development of the imperfect world in time is nothing but a gradual unfolding of the program all of whose details are laid down by omniscient and foreordaining Divine Providence.

The transition from the theological determinism to its modern and naturalistic form was gradual. The most important intermediate stage was the pantheism of Bruno and Spinoza. As long as the dualism of God and nature seemed to have its justification in the geometrical and physical structure of the Ptolemean universe, that is, in the sharp distinction of the celestial and sublunar world, the lurking pantheism of medieval theology had little chance to be formulated explicitly. Bruno, in removing the last celestial sphere of the fixed stars still retained by Copernicus, removed this obstacle and, fascinated by the unity and infinity of nature in space, paved the way for Spinoza's "Deus sive natura" which replaced the former "Deus et natura." But no matter how deeply transformed the concept of God appeared in Bruno's pantheistic reinterpretation, it still retained the same Eleatic feature, present in Neo-Platonism and medieval theology: its timelessness. "The Divine Spirit," writes Bruno in his Summa Terminorum Meta-Physicorum, "sees all things in one single act at once, that is without the distinction between the past, present and future; everything is present to him." 16 As in the previous systems, the notion of divine foreknowledge implied inexorably the notion of divine foreordaining, which in Bruno's pantheism became an immanent determinism of nature. But this determinism stemmed also from a different source: from the revived influence

<sup>16 &</sup>quot;Sicut et mens divina uno actu simplicissimo in se contemplatur omnia simul sine successione, id est absque differentia prateriti, præsentis et futuri; omnia quippe illi sunt præsentia..." (Jordani Bruni Nolani opera latine conscripta, Florentiae, 1889, vol. I, 4, chapter XIV, pp. 32-3.)

of Greek atomism whose main vehicle in the times of the Renaissance before the rediscovery of Democritus was Lucretius' De Rerum Natura.<sup>17</sup> It was to Lucretius — needless to say, to Lucretius without his "clinamen" — that Bruno owed his adherence to the atomic theory with both its essential features: the qualitative unity of matter and its quantitative preservation. Thus matter, which in Neo-Platonism was nothing more than a principle of negativity and passivity, in becoming "cosa divina," regained its status of the first principle. In spite of the imperfections in details, Bruno's system anticipated the classical Newtonian scheme of nature, monistic and deterministic at the same time, by almost purely speculative and imaginative means with amazing accuracy.

We can trace the merging of the same influences in the thought of Spinoza: medieval thought, Christian as well as Jewish, Neo-Platonism, revived Greek atomism and the nascent science of the seventeenth century joined together to produce one of the most powerful systems of thought.<sup>18</sup> While the

<sup>&</sup>lt;sup>17</sup> On the influence of Lucretius on Bruno, see W. Boulting, Giordano Bruno, London 1914, passim; G. D. Hadzsits, Lucretius and His Influence, New York 1935, pp. 279-83. On Bruno's anticipations of later physical and astronomical discoveries, see Boulting, 1. c., pp. 141-46; Harald Höfding, A History of Modern Philosophy (English translation by B. E. Meyer, 1900), pp. 123-30.

<sup>18</sup> Spinoza's letter to Hugo Boxel (Opera, IV, Epistola LVI) shows that he was clearly aware of his debt to the ancient atomists. He recalls Democritus, Epicurus and Lucretius, who showed "the futility of hidden qualities, intentional species, substantial forms and thousand other trifles" and he especially praises Democritus all of whose books were burned by his envious opponents. Spinoza's firm belief that the kinetic-corpuscular conception of matter had been firmly established long time ago and that it does not need to be verified empirically, led him to consider Boyle's experiments as more or less superfluous. Spinoza's philosophy of matter differs from the ancient atomism in only one important point; there is no limit to the divisibility of corpuscles because all bodies are conceived in Cartesian fashion as "modes of extension" and thus share with geometrical space its mathematical continuity. Nevertheless, in his rejection of the secondary qualities (Ethica, I. appendix) and in his attempt to reduce all apparent qualitative diversity in matter to the differences in motion and configuration (Epistola VI). Spinoza's attitude was essentially Democritean, like that of all his great contemporaries in the seventeenth century.

anticipatory genius of Bruno hardly embraced the intellectual development of one century subsequent to his death, the extent and accuracy of Spinoza's anticipations reached far deeper into the future. His fundamental thesis affirming the unity of nature and the rigid necessity of its immanent divine order agrees with that of Bruno and hardly represents anything basically new. The originality of Spinoza consisted in boldly and ruthlessly drawing all consequences from these two basic ideas — which are really one in two aspects — and thus outlining the program which particular sciences began to realize long after his death. There are four main consequences of his deterministic monism:

- 1. Causal order is of a logico-mathematical nature. Causal necessity is that of logical implication.
- Every contingency is only apparent and due exclusively to the subjective limitation of knowledge. To use the term "possible" is a sign of ignorance.<sup>19</sup>
- 3. Deterministic explanation has to be extended to the whole of nature, including the areas labeled "life" and "mind." Man himself is not a "realm inside of a realm," but a necessary part of the whole. All teleological explanations are anthropomorphic and have to be eliminated.
- 4. Duality of mind and body is a duality of aspect, not of substance. There is no interaction between consciousness and matter because of their strict phenomenal parallelism. For the same reason it is meaningless to speak of consciousness without reference to its accompanying bodily state.

It is beyond the scope of this article to discuss the last two points. They are closely related to the first two; it is in the name of the uninterruptedness of the causal series in nature that strict psycho-physical parallelism has been postulated and every contingency in nature, that is, every intervention of an immaterial or teleological agent, strictly banished. For our purpose it is sufficient to say that Darwinism and physiological psychol-

<sup>19</sup> Ethica, I, prop. XXXIII, scholium 1: "At res aliqua nulla alia de causa contingens dicitur, nisi respectu defectus nostræ cognitionis."

ogy as late as two centuries after Spinoza's death began to fill the general frames of explanation prepared by him with concrete empirical material. Only in the second half of the nineteenth century Spencer, Wundt, Bain, Maudsley, Taine, Ribot, Janet, Mach and many others in a concrete and detailed way applied the principles of parallelistic and physiological psychology laid down by Spinoza 20 while mechanistic biology was believed to have found a deadly weapon in the principle of natural selection capable to dispose once for all of all "stupid amazement" which, according to the author of the Ethics, the complexity of organic bodies awakens in a vulgar imagination. This certainly explains why a more general recognition of the true value of Spinoza's system among the scientists did not come before the second half of the nineteenth century.

But it is Spinoza's conception of the causal order which is our main concern here. According to Leucippus and Democritus, necessity is conceived as an external compulsion by which one material particle is pushed by another one. Spinoza retained this view only in his physics, or, in his own terminology, in the

<sup>20</sup> It can be hardly denied that the solution of the traditional mindbody problem proposed by the theory of psycho-physical parallelism (called the "automaton theory" by W. James) was in all essential features Spinozistic. After Descartes, and even more after Kant, it was difficult to dismiss the reality of consciousness altogether; but, on the other hand, in the times of Newton and especially in the century of Helmholtz and R. Meyer it was practically impossible to conceive a non-physical factor interrupting the continuous causal series inside of our bodies. Thus the parallelists as well as Spinoza recognized the reality of consciousness without falling into traditional dualism and interactionism: they deprived consciousness of its causal efficacy without denying it in materialistic fashion. Undoubtedly, many adherents of the "double aspect theory," for example Spencer, Bain and others, were not even aware of their own Spinozism; others. like Wundt, while admitting the basic similarities between their theory and that of Spinoza, insisted on the difference between their "empirical" attitude and the rationalistic metaphysics of their predecessor; still others, like Taine and Mach were fully and proudly aware of their debt to the author of the Ethics.

<sup>21</sup> Ethica, I, appendix: "Sic etiam, ubi corporis humani fabricam vident, stupescunt, et ex eo, quod tantae artis causas ignorant, concludunt, eandem non mecanica, sed divina, vel supernaturali arte fabricari, talique modo constitui, ut una pars alteram non laedat."

realm of "modifications of extension"; 22 but this mechanical causality of the physical world together with the corresponding causality of the parallel mental phenomena was for him only an unfolding of the timeless logical pattern existing eternally in the divine substance. Everything follows from the infinite substance by logical necessity, comparable to the necessity of a geometrical demonstration; the theorem concerning the internal angles of a triangle is timelessly implied in the logical definition of triangle itself, even though a finite mind is unable to perceive it instantaneously, forced as he is to proceed laboriously step by step. While human reasoning thus unavoidably takes place in time, in eternity there is no "before" and "after," but only a "simul totum" of static logical implication. This implication is mutual; not only, using Spinoza's example, does the definition of a triangle imply its properties statable in specific theorems. but also the property of having internal angles equal to 180 degrees implies the triangularity of a corresponding geometrical figure.23 Thus not only does the substance imply a particular mode, but also even the most insignificant modus implies the whole substance; therefore, in Spinoza's own words which reveal the striking and ruthless logic of his own system, the destruction of one single particle of matter would imply the destruction of the whole material universe.24

<sup>22</sup> Ethica, II, Lemma III. It is hardly anything more than a restatement of the law of inertia with explicit requirement that every external factor modifying the state of motion of a certain body must itself be of mechanical, i.e., corpuscular, nature. On Spinoza's lively interest in the problems of the seventeenth century science, see R. McKeon, The Philosophy of Spinoza, Longmans Green and Co. London and New York, 1928, ch. IV.

<sup>&</sup>lt;sup>23</sup> Ethica, I, prop. XVII, scholium: "Vero ego me satis clare ostendisse puto a summa Dei potentia, sive infinita natura infinitis modis, hoc est, omnia necessario effluxisse, vel semper eadem necessitate sequi, eodem modo, ac ex natura trianguli ab aeterno, ε in aeternum sequitur, eius tres angulos aequari duobus rectis". *Ibid*, I, prop. XXXIII, schol. 2: "At cum in aeterno non detur *quando*, *ante*, nec *post*: hinc, ex sola scilicet Dei perfectione, sequitur, Deum aliud decermere nunquam posse, nec unquam potuisse..."

<sup>24 &</sup>quot;Verum hoc concluditur, quod libenter etiam fateor, scilicet quod si una pars materiæ annihilaretur, simul etiam tota Extensio evanesceret" (Epistola V).

Physical thought, in affirming the mutual logical implication of cause and effect and therefore the timelessness of the causal order, moved obviously along the line indicated by Spinoza. Of course, nothing would be more naïve than to imagine that Spinoza's metaphysics had any historical influence on the development of physics. The opposite is true: it was the nascent mathematical physics of the seventeenth century with its ideal of deducibility of the whole series of effects from one single mathematical formula which profoundly impressed Spinoza and whose deeper philosophical meaning was readily grasped by his perceptive mind. His view of causality was certainly a happy intuition, though not an incidental one; with the perspicacity of genius he simply discerned the coming trend in physics and sciences in general.<sup>25</sup> His infinite substance thus became a

<sup>25</sup> It is frequently overlooked that Spinoza, in spite of his medieval ties, belonged to the seventeenth century and that his thought did not escape the influence of the intellectual climate created by Galilei, Kepler, Descartes, Newton and Huyghens. The influence of Descartes as philosopher is generally admitted, but seldom that of Descartes as a scientist who founded analytical geometry and helped to lay down the foundations of mechanics and mathemathical optics. Yet it cannot be denied that the geometrico-deductive method is the most conspicuous feature of Spinoza's philosophy which determined the form and even the name of his Ethics. His intense interest, however, even in such specific scientific questions as, for instance, the nature of the rings of Saturn or whether the comets move according to Kepler's laws (Epist. XXVI, XXX), shows that he was interested not only in general mathematical method, but also in its concrete physical applications. He even took an active part in theoretical research in his Algebraic Computation of the Rainbow ("Stelkonstige Reckening van den Regenboog," Opera omnia, IV) written explicitly for "the greater connection of physics and mathematics." It is therefore very probable that the growing success of the mathematical deduction in astronomy and optics which renders it possible to express the successive positions of the celestial bodies as well as the paths of the light rays in simple mathematical formulae, led him to conceive even causality in general in the same way, i.e., more geometrico, as a timeless geometrical implication. This implication is mutual for Spinoza as well as for Laplace. In Laplacean physics, not only every "instantaneous state of the universe" is implied by the whole cosmic past, but also the past states of the universe can be inferred from the present one; consequently, a present state not only contains virtually all future states, but it is deducible from any future state. In other words, in the same way as the Spinozean modus implies

mediating link between the medieval omniscient God and the "universal mind" of d'Alembert and Laplace. In the same way as all future details of the history of the world are actually present in the divine intellect of the medieval theologians, all future events preexist in the impersonal and mathematical order of classical physics. Divine omniscience became immanent and depersonalized, but retained its timeless and rigorously predetermining character. Besides, in Du Bois Reymond's formulation it was evident that certain theological reminiscences were still present in the mind of the physicists expounding the doctrine of universal necessity: "To such a mind (i.e., the Laplacean intellect) all the hairs on our head are counted and without its knowledge not a single sparrow falls to the ground." 26

### II

Static determinism when consistently formulated faced one difficult question: where does the temporal character, or, more accurately, the *illusion* of the temporal character of reality come from? What is its exact status in a rigidly determined world? In the whole history of Western philosophy no one dared to follow Parmenides up to the last extreme in espousing his unambiguously clear and simple denial of time and change. It is true that in all three main forms of static determinism, temporal succession has been explicitly denied to Being itself, no matter whether it was called Democritian  $\pi a \mu \pi \lambda \hat{\eta} \rho \epsilon s \delta \nu$  or "Ens Realissimum" of medieval scholastics or the impersonal mathematical order of nineteenth century science. Nevertheless,

the whole substance (see note 24) and vice versa, every instantaneous state of the Laplacean world contains virtually all other states, the future as well as the past, and vice versa. In both systems, the implication between the timeless whole of nature and its perishing and finite manifestation is mutual, no matter whether we call this manifestation modus or "instantaneous state": in both systems the dissymmetry of time and, consequently, its successive character is irretrievably lost.

<sup>26 &</sup>quot;Solchem Geiste wären die Haare auf unserem Haupte gezählt, und ohne seinem Wissen fiele kein Sperling zur Erde" (Wissenschaftliche Vorträge, edited by J. H. Gore, Boston 1896, p. 39).

change and succession still retained certain ontological status, though incomparably lower than true and immutable reality.

For atomism, ancient as well as modern, change was reduced to the displacement of atoms in empty space. The atoms themselves remain unaffected by their motion, being at different instants of time always the same, quantitatively as well as qualitatively. Only their mutual distances, i.e., their relations in empty space are changing; but it was infinitely significant that the empty space was called by Democritus "Non-Being." in opposition to the true and completed reality of matter, the change of the distances in the empty space being thus conceived as taking place in "Non-Being." Thus, "Non-Being," paradoxical as it was, was still conceived as existing in a certain sense because it was the only way of explaining the existence of motion and to escape the radical conclusions of the Eleatic school. It was, however, evident that change itself, though not completely abolished, was admitted in the most innocuous way while not affecting the eternal sameness of the basic reality. Change and succession retained only shadowy existence, a sort of half-existence hovering hesitatingly between full Being and pure Nothing, sliding, as it were, over the smooth surfaces of the impenetrable and unchangeable atoms. Lucretius was only consistent in insisting that "time is nothing by itself." 27

In medieval theological determinism as long as the latent pantheistic tendencies were checked by the explicitly asserted distinction between God and nature, the reality of time and change was not denied at least not to the world of the created beings, even though it was inapplicable to the Creator himself. But as soon as the distinction between creating God and created nature was more and more challenged, the status of temporality began to grow dimmer. If the timeless divine order is the only true and genuine reality underlying the apparent world, where is the true locus of change and succession? The epistemological distinctions between "appearance" and "reality" can apparently reconcile the opposition of changeless and changing. The latter belongs only to the phenomenal world, i.e., to the world as per-

<sup>27</sup> De Rerum Natura, I, pp. 459-64.

ceived in a distorted and confused way by a finite and imperfect subject. In the words of Spinoza: God quatenus infinitus est is other than quatenus humanam mentem constituit. William James observed rightly that the system of Spinoza and all other related philosophies are worked by the word "quatenus". "Conjunctions, prepositions, and adverbs play indeed the vital part in all philosophies; and in contemporary idealism the words 'as' and 'qua' bear the burden of reconciling metaphysical unity with phenomenal diversity. Qua absolute the world is one and perfect, qua relative is many and faulty, yet it is the self-same world —instead of talking of it as many facts, we call it one fact in many aspects." <sup>28</sup> The reconciliation is hardly more than verbal.

At least this verbal prestidigitation shows plainly that even when change and succession are declared to be illusions, they, being illusions, still remain at least psychologically real. Chased from the realm of objective reality, change and succession take refuge in the world of our inner states. No matter how illegitimate it is to project the psychological succession outside of our private "stream of consciousness," the stream itself of our mental states remains irreducibly changing and successive; otherwise the very illusion of temporality would be impossible. The removal of any illusion presupposes its previous psychological existence; thus I am wrong in believing in the existence of a rainbow outside of my mind, but this very error of judgment is based on the psychological presence of the visual mental state whose reality in my consciousness cannot be denied. I can be wrong in believing that the objective succession of events corresponds to the succession of my sensations, but I cannot be wrong in experiencing this succession as a psychological fact because this is one on which my erroneous belief if it is erroneous - is based. Succession and change does possess undeniable reality, at least in the realm of consciousness.

Is it really undeniable? Kant undertook the most elaborate attempt to establish that it is not so. According to him, our

<sup>28</sup> A Pluralistic Universe, p. 47.

mental states are ordered in their successive relations by the same a priori form of time as the events of the physical world; they do not succeed each other, they only appear to succeed and although this succession is a necessary result of the structure of our knowledge, it is nevertheless nothing more than a phenomenon which has to be carefully distinguished from "the thing-in-itself," from true reality. In Kant's own words:

Time is therefore to be regarded as real, not indeed as object but as the mode of representation of myself as object. If without this condition of sensibility I could intuit myself, or be intuited by another being, the very same determinations which we now represent to ourselves as alterations would yield knowledge into which the representation of time, and therefore also of alteration, would in no way enter. <sup>29</sup>

This passage is obvious enough: not only the external world, but even the content of our mind is beyond time, and its succession is only a phenomenon due to our subjective limitations. In a doctrine of this sort, "apparent duration of things expresses merely the infirmity of a mind that cannot know everything at once." <sup>30</sup> Remove the limitation of our sensibility which we call "time" and the appearance of succession disappears in the all-embracing act of omniscience to which even all our mental life will appear in its timeless totality. This explains not only why Kant formulated Laplace's idea a quarter of a century before Laplace, but also why he went even further when he extended its validity to the realm of consciousness.

Nevertheless, by watching Kant's reasoning closely, we can discern that temporality is not eliminated; on the contrary, the reality of succession is surreptitiously postulated in the very act which is intended to eliminate it. First, Kant artificially separates the bare act of consciousness, which is empty and changeless, from its concrete content, which is various and changing. But even when we grant this Aristotelian separation of "matter" and "form" which has been so savagely attacked

<sup>29</sup> Critique of Pure Reason, translated by Norman Kemp Smith, p. 79. The word for "alteration" in the German original is Veränderung.

<sup>&</sup>lt;sup>30</sup> H. Bergson, Creative Evolution, translated by A. Mitchell, Modern Library Edition, p. 45.

by William James,<sup>31</sup> and even when we agree that the objective reality underlying our external perceptions as well as our "phenomenal self" is outside of time, temporality is not eliminated. For what prevents our transcendental timeless Ego from grasping our subjective stream of consciousness as it really is, i.e., frozen in its timeless form of the "intelligible character"? Nothing but our subjective form of time. But where is the locus of this subjective form interposed between timeless transcendental Ego and equally timeless "thing-in-themselves" including our true psychological self? Kant's answer is unambigously clear, although he did not realize its implications: the subjective form of time is the way in which our awareness is affected by our real self.<sup>32</sup> But to affect implies activity and activity implies succession, as Kant implicitly admits:

I can indeed say that my representations follow one another; but this is only to say that we are conscious of them as in time-sequence, that is, in conformity with the form of inner sense. Time is not, therefore, something in itself, nor is it an objective determination inherent in things. $^{33}$ 

In other words: if time is represented as a curtain interposed between our consciousness and reality, Kant cannot deny that the curtain *gradually rises*, revealing in succession what in

<sup>&</sup>lt;sup>31</sup> W. James, *Principles of Psychology*, I. After criticizing "the utter barrenness of the consciousness of the pure Self" (p. 362), James states that "Transcendentalism is only substantialism grown shame-faced, and the Ego only a cheap and nasty edition of the soul... The *Ego* is simply nothing: as ineffectual and windy an abortion as philosophy can know" (p. 365).

<sup>32</sup> I prefer to quote from the German original (Gesammelte Schriften, III, p. 70): "Wenn das Vermögen sich bewusst zu werden das, was im Gemüthe liegt, aufsuchen (apprehendieren) soll, so muss es dasselbe afficieren und kann allein auf solche Art eine Anschauung seiner selbst hervorbringen, deren Form aber, die vorher im Gemüthe zum Grunde liegt, die Art, wie das Mannigfaltige in Gemüthe beisammen ist, in der Vorstellung der Zeit bestimmt; da es denn sich selbst anschauet nich wie es sich ummittelbar selbsthätig vorstellen würde, sondern nach der Art wie es von innen afficiert wird, folglich wie es sich erscheint, nicht wie es ist" (Italics mine).

<sup>33</sup> Critique of Pure Reason, translated by Norman Kemp Smith, p. 79 n.

itself (i.e., without movement of the curtain) is without succession. Nevertheless, the gradual rising of the curtain is still a successive process. Thus temporality banished from everywhere still in a shadowy form creeps between the timeless transcendental Ego and timeless "intelligible character." Temporality is like the Cartesian Cogito which although denied constantly and repeatedly from the time of Leucippus to the behaviorists and physicalists of today, emerges always in the act by which it is denied. This is what Professor Lovejoy called the "paradox of the thinking behaviorist," 34 while a similar paradox which we have just analyzed can be called the "paradox of the changing Eleatic": even if time is nothing but a veil of ignorance, this veil must be lifted in order gradually to uncover the hidden timeless reality; or, without metaphor, in order to have the illusion of time, succession must have a certain ontological locus. if not consciousness where it is usually located, at least between consciousness and its content, as it is the case in the highly elaborate and sophisticated doctrine of Kant.85

### Ш

In view of these insurmountable difficulties which all Eleatic and quasi-Eleatic systems face, it is only natural that the large majority of determinists in the last and present century squarely accept the reality of time. This is true especially of men of science who are less concerned about metaphysical subtleties and who naturally adhere to a common sense recognition of the reality of change and succession. Heinrich Helmholtz even

<sup>34 &</sup>quot;The Paradox of the Thinking Behaviorist," Philosophical Review, XXI.

<sup>&</sup>lt;sup>35</sup> Kant not only did not realize that his view of time makes all our inner experience illusory, but he apparently congratulated himself for making our existence independent of such a non-entity (*Unding*) as truly existing time. "... Ja müsste sogar unsere eigene Existenz die auf solche Art von der für sich bestehenden Realität eines Undinges wie Zeit abhängig gemacht wäre, mit dieser in lauter Schein verwandelt werden, eine Ungereimtheit, die sich bisher noch niemand hat zu Schulden kommen lassen" (*Kritik der reinen Vernunft, Werke III*, p. 72). The Eleatic twist of Kant's mind here is more than obvious.

claimed that succession is the only feature common to our private mental states and the objective world underlying our sensual perception. Time thus became the only joining link between two regions into which the "bifurcation theory" splits reality. The main question which arises now is: are necessity and temporality logically compatible?

The answer of "common sense" is obvious: no concept is more familiar to us than the idea of a process whose phases, though necessarily determined, still distinctly succeed each other. All our thinking in the sciences, not only in astronomy and physics, but also in biology, psychology, sociology, and history is based on the idea of necessary connection in time. "It is entirely possible," says Ralph B. Perry in criticizing Bergson, "to maintain the existential priority of time and to be a vigorous determinist as well." <sup>36</sup> According to Perry, even a strictly determined mechanical system ages, but of course, it ages according to law; the simplest mechanical movement of a single particle all of whose future positions are completely and accurately predictable contradicts Bergson's assertion that real evolution in time and rigid necessity are incompatible.

It is unquestionable that all evidences seem to support this view, at least if we restrict ourselves to the classical physics of the last century, when the success of astronomical predictions became a fascinating and ideal goal for all other areas of human knowledge. But before we consider how the situation changed in the second quarter of the present century, we have again to point out a serious difficulty which it raised by the idea of strict determination of successive events.

What is the precise meaning of necessary causal connection between two successive events a and b? It can only mean that all features of the event b which follows after event a, even those which are the most individual and apparently entirely contin-

<sup>&</sup>lt;sup>36</sup> R. B. Perry, Present Philosophical Tendencies, New York, 1921, pp. 251-52. The very same idea that "the historic character of time does not depend on our ability to reduce the possibility of future events to a complete or partial necessity" was recently reaffirmed by C. F. von Weizsäcker, The History of Nature, University of Chicago Press, p. 137.

gent, are logically deducible from the previous event. If we use the example mentioned by Perry of a single isolated body moving with uniform velocity, then the position of a body at an instant t together with its velocity (v = const.) and acceleration (a = 0) determines completely all its future positions and velocities. To be sure, this is an ideal case never realized in nature because there is no isolated body, not even an isolated system of bodies in the universe. But even if we take into consideration all moving and interacting particles in the universe. the picture, although tremendously more complex, will not be essentially different. The event b and the event a will be more accurately replaced by two successive states of the whole universe, each being a huge instantaneous configuration of material particles in two successive moments. This was the meaning of Laplace's famous statement which, in considering the succession of the instantaneous states of the whole universe as the only true causal chain, avoids the fallacy of an "isolated system." It is true that very frequently and for practical purposes the fallacy is not too dangerous; in the words of John Stuart Mill no observable inaccuracy will result if during our chemical experiment we disregard the processes occurring outside of our planet and even outside of our laboratory. But. strictly speaking, these individual and approximately isolated causal processes are only parts of one single huge causal network which is a continuous succession of the instantaneous states of nature, each state implying all others.

Here the difficulty comes. Every logical implication is admittedly timeless. It is a commonplace in logic to distinguish the implication itself which is beyond time from the corresponding process of inference with its distinct successive stages. In other words, although psychologically the conclusion follows from the premises, logically it is timelessly implied or contained in the premises, and words like "antecedent," "consequent," "it follows," are essentially metaphorical and even misleading because of their obvious temporal connotations. The simultaneity of the conclusion with premises can be illustrated and even visualized by analyzing the traditional categorical syllogism:

All M are P, all S are M, therefore all S are P. By drawing Euler's circles it becomes immediately obvious that the inclusion of the class S into the class P coexists with two "previous" inclusions, M in P and S in M; there is no succession, no movement here, except the shifting movement of our attention which after noticing the first two inclusions perceives the simultaneous inclusion of class S in P. It is certainly not necessary to restrict ourselves to this classic example: the same preexistence of a valid conclusion in the premises is postulated also in every relational argument, in every mathematical reasoning and in every reasoning in general; it is this fact which accounts for our saying that we discover truth instead of creating it. The belief that reality itself, including all its future phases, is nothing but a single though tremendously complex pattern of pre-existing truth which is gradually and laboriously unveiled to our imperfect intellect is at the very bottom of classical determinism. But the question now arises again: where does the succession come from? Why is the future development of the universe, though already given and necessarily implied, not present now? If the future logically pre-exists in the present state of the universe, why does it require a certain time to become present? Why this strange delay which cannot be accounted for by the structure of necessary implication and which we call "time"? Or in the words of William James: "Why, if one act of knowledge could from one point take in the total perspective, with all mere possibilities abolished, should there ever be anything more than that act? Why duplicate it by the tedious unrolling, inch by inch, of the foredone reality?" 87

For a naturalist and a common scientist this question is even more difficult because he usually refuses to follow the traditional escape-route of Spinoza, Bradley, McTaggart and others, who confine succession within the "realm of consciousness" only in order to deny its objectivity. But fortunately for his peace of mind, a deterministic scientist is most often unaware of the inherent difficulty; he simply accepts necessity together with temporality without being even interested in the question of

<sup>37</sup> The Will to Believe, p. 271 ("On Some Hegelisms").

their mutual compatibility. Very probably even Laplace, T. Huxley and Du Bois Reymond sincerely believed in the genuine reality of time without becoming aware that their belief was a simple association of ideas or rather a combination of words which when analyzed cannot possess any self-consistent meaning. They failed to realize that temporality does not have any justifiable existence in their necessitarian scheme; that it is impossible to adhere to their doctrine and at the same time ignore its inherent logic which requires one to give up time; that, if they admit that time and succession are simply empirically given without being logically deducible from their own scheme, they admit contingency is essentially foreign to their system; that, consequently, their determinism ceases to be universal and is replaced by a sort of compromise which has undoubtedly the merit of not sacrificing the reality of time and change, but does not possess the logical consistency of a unified necessitarian scheme. If the rigid form of determinism is supposed to account for all features of any future event and at the same time fails to account for its most fundamental one: its "latterness," its "posteriority," its "futurity," its "not yet." then it certainly does not merit its name. Furthermore, if the same doctrine tries to incorporate into its own body the element which is ex definitione excluded, then it ceases to be logically coherent.

The incompatibility of temporality and necessity has been clearly established by the French temporalists of the second half of the nineteenth century, Jules Lequier, Charles Renouvier, Emile Boutroux, Joseph Delbœuf, and Henri Bergson. They also pointed out that the necessitarian scheme by its "causa æquat effectum" eliminates every difference between an antecedent and consequent and thus deprives causality of its dynamic and successive character. But the intellectual climate of that period was not favorable to ideas of this sort; the principle of necessary causal connection embodied in its more concrete form

<sup>38</sup> E. Boutroux, De la contingence des lois de la nature, p. 25: "Serait-il encore un conséquent, un effet, un changement, s'il ne différait de l'antécédent, ni par la quantité, ni par la qualité?"

in the law of conservation of matter and energy ("the law of persistence of force," in Spencer's terminology) was a scientific dogma which practically nobody dared to challenge and it is only now in the light of recent developments in physics that the bold views of Cournot, Boutroux and Peirce about the objective character of chance are treated with more tolerance. Minds were so dominated by necessitarian dogmatism, so fascinated by the triumph of scientific predictions and by the repeated success of mathematical deduction in the physical sciences that practically no one paid attention to Bergson when he pointed out the incompatibility of time and necessity in the concrete case of mechanical equations. In the passage of his Creative Evolution which since then has become classical, Bergson showed that the equations of mechanics are not concerned with the time interval separating the successive instants; consequently

... the flow of time may assume an infinite rapidity, the entire past, present and future of material objects or of isolated systems might be spread out all at once, without there being anything to change either in the formulae of scientist or even in the language of common sense. The number t would always stand for the same thing; it would still count the same number of correspondences between the states of the objects of systems and the points of the line, already drawn, which would be then "the course of time."  $^{39}$ 

Then, after quoting Laplace, Bergson concludes: "In such a doctrine, time is still spoken of; one pronounces the word, but one does not think of the thing. For time is here deprived of efficacy and if it does nothing, it is nothing." 40

Bergson probably was not entirely correct in claiming that a determinist pronounces the word "time" without thinking of real succession. The state of mind of an average determinist is more complex, and it was more correctly analyzed by Bergson in his first book where he pointed out that the belief in necessary causal connection is an association of two plainly incompatible ideas — that of mathematical necessity implying preformation and even pre-existence of the future whose "futurity" thus becomes only apparent — and that of a temporal process

<sup>39</sup> Op. cit., p. 12.

<sup>40</sup> Ibid., pp. 44-45.

with distinctly successive phases called respectively "cause" and "effect." <sup>41</sup> This association is so intimate and made so automatic by habit and, consequently, so familiar to an average mind that its absurdity is not noticed. Progress in redefining the concept of causality can be achieved only by a more attentive analysis, psychological as well as logical, by separating the incompatible elements fused into the deceptive unity of an instinctive belief, by challenging all silent assumptions which confuse psychological familiarity with logical evidence. It was such an analysis which so many times in intellectual history paved the way to the progress of scientific insight in dissociating notions connected by apparently unbreakable associations.

In a few instances, determinist philosophers became aware of the incompatibility between time and necessity. Thus Hans Driesch after stating his Laplacean belief in the predetermination of his so-called "vitalistic" universe, asks why the timeless entelechies unfold their activities in time; why the development of an individual organism from the ovum up to its adult form is not realized in one single and complex act? He frankly admits: "To this, we have no answer." 42 It is obvious that the question concerning the legitimacy of time can arise in the necessitarian scheme only. On the other hand, Hippolite Taine who became famous by applying strict Spinozistic determinism to the history of literature and the theory of art, nevertheless refused to follow his master in eliminating temporality when he replaced the static geometry of the Ethics by his "living geometry" (la géométrie vivante) without realizing that he was juxtaposing two incompatible words.43 Most frequently the

<sup>&</sup>lt;sup>41</sup> Essai sur les données immédiates de la conscience, pp. 161-164.

<sup>42</sup> Philosophie des Organischen, p. 326 (Entelechie und Zeit): "Warum nun freilich braucht die Entelechie zur vollständigen Volleistung der Zeit, warum geht nicht durch einen komplizierten Werdeakt, durch Entwicklung von nur einem Schritt, der Erwachsene aus dem Ei hervor? Das wissen wir nicht."

<sup>48</sup> André Chevrillon, Taine. Formation de sa pensée. Paris, Plon, 1932, pp. 64-65. The expression "une géométrie vivante" is in Taine's concluding chapter about Byron, which is Spinozistic in spirit and almost in letter (Histoire de la littérature anglaise, IV, p. 389).

incompatibility between the affirmation of real novelty and deductive necessity was only vaguely felt: but this vague feeling was sufficient to find its expressions in certain peculiarities of language which were invented in order to reconcile the necessitarian claim of the logical equivalence of cause and effect and the vague, though very strong feeling of their genuine difference resulting from their real, i.e., not merely symbolical, succession. William James, who pointed out the function of "quatenus" in the philosophy of Spinoza by which the eternity and unity of substance was to be reconciled with the realm of manifold and changing modes, called attention to a similar semantic device by which the difference between cause and effect could be united in purely verbal fashion with their basic identity:

But if the maxim holds firm that quidquid est in effectu debet esse prius aliquo modo in causa, it follows that the next moment can contain nothing genuinely original, and that the novelty that appears to leak into our lives so unremittingly, must be an illusion, ascribable to the shallowness of the perceptual point of view. Scholasticism always respected the common sense, and in this case escaped the frank denial of all genuine novelty by the vague qualification "aliquo modo." This allowed the effect also to differ, "aliquo modo," from its cause. But conceptual necessities have ruled the situation and have ended, as usual, by driving nature and perception to the wall. A cause and its effect are two numerically different concepts, and yet in some inscrutable way the former must "produce" the latter. How can it intelligibly do so, save by already hiding the latter in itself? 44

More interesting is the attempt of the other group of determinists who, not satisfied by simple empirical (as they believe) coexistence of causal necessity and succession, are trying earnestly to explain it. The case of the once famous French philosopher and psychologist Alfred Fouillé is representative and instructive in this respect. He says explicitly:

We live in time and we reason in time. Well, in time it would be contradictory to say that the future exists and exerts influence because in such a case I would be at the same time alive and dead, truly alive and truly dead, my future death being already real as much as my present life. Such a theory would mean the elimination of every possible thought and every possible experience because

<sup>44</sup> W. James, Some Problems of Philosophy, pp. 192-93.

thought cannot admit the simultaneous presence of contradictories and because experience cannot grasp simultaneously the present and the future.<sup>45</sup>

This argument is very probably borrowed from Boutroux, for whom it was equivalent to the rejection of necessitarianism; but not so for Fouillé who on the same page did not forget to add that contingency is absent from the past, from the present as well as from the future. According to Fouillé, we have to replace static determinism by what he calls "le déterminisme dynamique"; what is original in Fouillé's position is that temporality is not only recognized as genuinely real, but also attempted to be logically explained as an unavoidable result of the law of non-contradiction. For it is the logical incompatibility of the successive phases of the universe which prevents them from being all co-present simultaneously in one single "punctum stans."

The argument is extremely interesting and, if valid, it would provide the answer to the question raised by Lequier, Delbouf, James and Boutroux. Why is the already developed film of reality only gradually unrolled instead of being spread out at once like a map? The same argument in its less precise form occurs very frequently, especially in preponderantly deterministic historical reasoning. Was the French revolution possible, say, for instance, after the death of Louis XV in 1715? The answer which we would hear, would be: "Certainly not, because not all necessary conditions were present." But although it was impossible in 1715, was it not necessary already then as a future

<sup>&</sup>lt;sup>45</sup> A. Fouillé, La pensée et les nouvelles écoles antiintellectualistes, p. 140. In this book, though published in 1911, the author merely restates the ideas contained in the series of articles published in the Revue Philosophique in 1882-1883, directed mainly against Lequier, Renouvier, Delbœuf and Boutroux: "Les nouveaux expédients en faveur du libre arbitre," "Les arguments métaphysiques en faveur du libre arbitre," "Le libre arbitre et la contingence des futurs," and "Causalité et liberté." It is significant that Fouillé does not realize that in comparing causality to mathematical implication he destroys his own explanation why the future is not yet present: "Quand deux et trois sont présent, cinq ne peut être ni absent, ni en retard; il n'a pas à choisir son heure; il est lui, aussi, immédiatement présent" (R. Ph., 1882, II, p. 607).

event in 1789? Let us go further: Was the revolution possible in 1788? For an unprejudiced historian it was. At the time, the revolutionary propaganda already had very considerable psychological effects, the authority of the aristocracy, hierarchy and dynasty was seriously undermined, the sight of the nobility riding in carriages already drew threatening gestures from the people while Marat was reciting Rousseau's Contrat Social publicly on the boulevards of Paris. Yet, for a rigid determinist the outbreak of the revolution was still impossible in 1788 for the simple reason that it did not occur. To him, to speak about the possibility of the revolution in 1788 is nothing but vague and metaphorical language because no real possibilities exist; whatever does not happen is impossible and the term "possibility" itself is nothing but what was called by Spinoza "asylum ignorantiæ." We can apply the same reasoning to the history of any individual person; for instance, the murder committed by Raskolnikov was impossible up to the last moment; as matter of fact, it was even impossible in the last second when he was already raising the hatchet with his hands half-paralyzed by the strong unconscious resistance to the coming crime. This impossibility is similar to that which prevents a bullet from hitting its target when it is still separated from it by the distance of few feet, or which prevents the Earth from being at the perihelion while it is still 30 km, away from it. More generally, it is the same impossibility which prevents the successive stages of one process from being simultaneously present.

But if it is so, would it not be logical to follow this reasoning up to the end and to say with the author of *Time and Free-Will* that the event is necessary when it is actually present and that the whole thesis of "dynamic determinism" can be reduced to a simple truism that "what is done, is done"? <sup>46</sup> For, no matter how narrow the time-interval separating two successive events becomes, their incompatibility is the very opposite of the iron

<sup>46</sup> Essai sur les données immédiates de la conscience, p. 137: "vous verrez que l'argumentation des déterministes revêt cette forme puérile: "L'acte une fois accompli, est accompli et que leurs adversaires répondent: l'acte, avant d'être accompli, ne l'était pas encore." (English translation in Time and Free Will, p. 182).

necessitating link which Fouillé and others postulate between them. Thus while static determinism abolished real causation by dissolving it into timeless eternal implication, "dynamic determinism" breaks the continuity of temporal causal action into the multiplicity of vanishing and disconnected instants without any bridge which would convey the postulated necessitating pressure by which one event "brings into being" the subsequent one. Both forms of determinism are complementary outgrowths of the same basic fallacy — the fallacy of confusing causality with static relation. The first ends in the static eternal unity of the Spinozean and Laplacean "block-universe," the second in the discontinuity of the no less static instants of the logical atomism of Russell with its lurking Humean implications.<sup>47</sup>

#### IV

In removing contradictory and contra-empirical Eleatic habits of our thought, are we not approaching the true notion of causality conceived as a successive process and not as a logical implication? Before we shall discuss it, it is important to point out that the only merit of Fouillé's method — the attempt to justify logically the fact of temporality in the necessitarian scheme — failed to convince the majority of scientists who otherwise agreed with him in rejecting the reality of contingency. This became especially obvious when the great number of physicists took the first opportunity to accept the most extreme Eleatic conclusions about reality. Such an opportunity

<sup>47</sup> The Principles of Mathematics, 1903, p. 347: "Weierstrass, by strictly banishing all infinitesimals, has at last shown that we live in an unchanging world, and that the arrow, at every moment of its flight is strictly at rest. The only point where Zeno probably erred was in inferring (if he did infer) that, because there is no change, therefore the world must be in the same state at one time as at another" (Italics mine). In spite of this Humean assertion of the sheer externality of the subsequent events, Russell still maintained their causal implication (pp. 474-81) and obviously adhered to the classical Laplacean view. Only considerably later he realized the Humean implications of his views when he declared the law of causality to be "a relic of a by-gone age" (Mysticism and Logic, p. 180).

presented itself in 1908 when Minkowski in interpreting Lorentz's equations proposed to merge space and time into one single quadridimensional continuum called "space-time." Minkowski himself and a great number of physicists and philosophers considered this fusion of space and time as a sort of spatialization of time, time being conceived as an additional fourth dimension of space. According to Einstein himself, "becoming" in three dimensional space was thus transformed into being in the world of four dimensions; according to Cunningham "the history of a system is unfolded into an entity deprived of change. But the limitations of the human intellect separate the changeless whole into its spatial and temporal aspects, the past and the future of the physical world being only the past and the future of the intellect which perceives it." 48 Hermann Weyl did not hesitate to affirm that "the objective world simply is, it does not become"; it appears to become only to our "blind-folded consciousness" (abgeblendete Bewusstsein).49 Such views were representative of the large group of scientists. Could the Laplacean ideal of the elimination of time have been realized more completely and more accurately? At the same time it becomes obvious that Fouillé's attempt to derive temporality from the incompatibility of successive phases either fails or is circular. From the mere incompatibility of events their succession cannot be derived, as Minkowski's scheme plainly shows; using Fouillé's example, two "successive" events of my life literally coexist on the world-line in the continuum of four dimensions, being separated by what we call "the length of time"; the law of contradiction is not violated because the propositions "I am alive" and "I am dead" refer to two different points on the same world-line without making them successive in a truly objective sense. This conclusion is nothing but a recognition of the fact that succession is something more than a simple diversity or multiplicity. If, on the other hand, Fouillé

<sup>48</sup> Quoted by E. Meyerson, La déduction relativiste, Paris, 1925, p. 100.

<sup>49</sup> H. Weyl, Was ist Materie? Berlin, 1924, p. 87: "Die objective Welt ist schlechthin, sie geschieht nicht."

silently assumes that the incompatibility is of a more specific character resulting from their succession, his derivation of temporality is nothing but a vicious circle.

It is not difficult to see that this last attempt to eliminate time and succession fails in its ultimate purpose as much as all previous ones. Even if we consider it as the indisputably correct interpretation of the special theory of relativity and even if we admit with Cassirer that in the physical world the distinction between the past and the future is as arbitrary as the distinction between positive and negative direction of a straight line in space. 50 the fact of succession remains unchallenged in its last refuge: consciousness itself. Even Weyl had to admit that our "blindfolded" consciousness creeps along the world-line of its own body into the area of the universe which is called "future"; 51 or, in the language of Eddington, we meet the future events already existing in our way to the future.52 It is evident that although Minkowski's schema eliminates succession in the physical world, it recognizes at least the movement of our consciousness into the future. Without it not even an illusion of change could arise; it is the same "paradox of the changing Eleatic" to which we referred above.

But in the case of the special theory of relativity it is not necessary to resort to the ultimate epistemological argument in order to save the reality of change and succession. It becomes more and more obvious that the true interpretation of the Lorentz transformation is exactly contrary to that quoted above. We do not have to forget that the negative result of the Michelson experiments established the impossibility of determining the absolute movement of the Earth, that is, the impossibility of determining the absolute frame of reference to which this movement could be referred. Previous to Michelson's

<sup>50</sup> Ernst Cassirer, Zur Einsteinschen Relativitätstheorie, p. 119.

<sup>&</sup>lt;sup>51</sup> H. Weyl, op. cit., p. 87: "Nur vor dem Blick des in der Weltlinie seines Leibes emporkriechenden Bewustseins 'lebt' ein Auschnitt 'auf' und zieht an ihm vorüber als raumliches, in zeilicher Wandlung begriffenes Bild."

<sup>52</sup> A. Eddington, Space, Time and Gravitation, p. 51.

experimental results it was believed that the electromagnetic ether was, so to speak, a physical embodiment of this absolute frame of reference or, in other words, of absolute Newtonian space. The generalization by Einstein of the negative result of Michelson's experiments logically implied then the rejection of absolute space. Absolute space in classical mechanics was conceived as an instantanous three-dimensional cross-section of the spatio-temporal development of the universe, a cross-section in which all truly simultaneous events were located; thus the rejection of absolute space implied the rejection of the objective substratum of absolute simultaneity and, consequently, the elimination of the absolute simultaneity of distant events which was silently assumed in Newtonian mechanics; that is why it was possible to speak about "nature at a given instant" or. with Laplace, about the "instantaneous state of the world" represented by a giant configuration of simultaneous corpuscular entities. The special theory of relativity thus implies the impossibility of isolating the instantaneous three-dimensional cross-section called "absolute space" from the quadridimensional development of physical reality: it was this instantaneous slice in which all truly simultaneous events were supposedly located. This is the meaning of Whitehead's statement that "there is no such thing as nature at an instant" 53 or of Eddington's claim that there is "no world-wide instant," i.e., an instant coveringthe whole universe.54 But does it not thus become clear that Minkowski's fusion of time and space into a single dynamic whole across which all instantaneous cuts are artificial can be better characterized as a dynamisation or temporalization of space rather than a spatialization of time?

The probability of this conclusion is strengthened by the epistemological analysis of our habit of conceiving time as a simple additional dimension of space. This "spatialization of

<sup>&</sup>lt;sup>53</sup> A. N. Whitehead, Science and the Modern World, New American Library Edition, pp. 38, 120; The Concept of Nature, p. 57: "There is no such thing as nature at an instant posited by sense-awareness." See also pp. 72-73.

<sup>54</sup> The Nature of the Physical World, pp. 42-47.

time" is very probably a result of a deep-seated intellectual habit which embodies the natural tendency of human thought to conceive a future action or a future event as already present, as already realized; this anticipating function of thought is one of its most important features, due to its originally purely practical character. For it is foresight which enables an individual organism to adjust itself to new situations. This psychological tendency took a more distinct and a more elaborate form after the foundation of rational mechanics when time acquired the function of an independent variable; but, as Bergson, Meyerson and C. D. Broad pointed out, in a space-time diagram of mechanics, just because it is a geometrical diagram containing simultaneous parts, we have a tendency to be more interested in the time-axis already drawn than in the point-like present sliding along it; the positions which punctual presentness occupies successively already exist in the diagram. 55 It is not surprising that Descartes considered time as a dimension and that d'Alembert defined mechanics as "la géométrie à quatre dimensions." The foundations of the Laplacean illusion were thus laid down and it is only natural that the habit of spatialization of time, strengthened by three centuries of successful application in physics, naturally and spontaneously slipped into the interpretations of the special theory of relativity, especially since the Kantian doctrine of the ideality of time oriented the imagination of philosophers in the same direction. Nevertheless, there have always been a number of physicists and philosophers who insisted that the true meaning of Minkowski's schema is incompatible with spatialization, i.e., elimination of time. Among the physicists, Langevin and, in his latter phase, Eddington,56 pointed out that the dissymmetry of time and space is preserved even in the special theory of relativity and that it is precisely the finite velocity of light which prevents indiscriminate inter-

<sup>55</sup> H. Bergson, Durée et Simultanéité, pp. 80-83; E. Meyerson, La déduction relativiste, pp. 102-107; C. D. Broad, Scientific Thought, p. 59.

<sup>56</sup> Paul Langevin, Le temps, l'espace et la causalité dans la physique moderne, Bulletin de la Société française de la philosophie, Séance du 19 octobre 1911, pp. 24-26; A. Eddington, The Nature of the Physical World, pp. 47-52.

changing of spatial and temporal dimensions. Among philosophers, Bergson, Meyerson, Whitehead and Paul Weiss 57 insisted on the fundamental irreversibility of time even in the relativistic scheme of the universe and on its compatibility with the plurality of individual temporal perspectives.

There is no space left here to point out how this dynamic interpretation of Einsteinean "space-time" - or rather "timespace" — is supported by other facts of contemporary physics. A detailed discussion of the implications of the quantum theory and of the problems connected with the much disputed Heisenberg principle of indeterminacy would require a separate article, For our present purpose it is sufficient to state that any return to classical determinism appears to be extremely doubtful. There is one relatively simple reason; underlying the classical. i.e., necessitarian, concept of causality is the claim that the history of the physical universe can be represented as a mathematically continuous series of instantaneous states, each being an instantaneous configuration of a fantastically large number of simultaneous corpuscular entities sharply defined by their positions, velocities and accelerations. It is thus evident that the classical concept of causality presupposes the whole set of classical ideas: a) spatio-temporal continuity; 58 b) absolute

<sup>&</sup>lt;sup>57</sup> H. Bergson, op. cit., pp. 98-99, 111-15; E. Meyerson, op.cit., the chapter "Le temps"; A. N. Whitehead, An Enquiry concerning the Principles of Natural Knowledge, p. 81; The Concept of Nature, p. 178; Paul Weiss, "The Nature and Status of Time and Passage," (Philosophical Essays for A. N. Whitehead, p. 162).

<sup>&</sup>lt;sup>58</sup> C. S. Peirce in an article written sixty years ago observed that "the essence of the necessitarian position is that certain continuous quantities have certain exact values," in other words, that the concept of spatiotemporal continuity, implying the possibility of precise punctual localization, underlies the classical idea of causality. In showing its basic unverifiability, Peirce virtually anticipated Heisenberg's principle of indeterminacy and the pulsational character of all changes as it is suggested by modern quantum theory. ("Doctrine of Necessity Examined," Collected Papers of C. S. Peirce, edited by C. Hartshorne and P. Weiss, VI, p. 35.) Although the pulsational theory of change was anticipated by Renouvier, Bergson and James, who all applied the notion of "specious present" even to the physical world, it descended to a more empirical ground with

simultaneity of even the most distant events; c) corpuscles with their positions and velocities sharply definable. Not a single one of these concepts remained unchallenged by the present transformation in physics. All hopes that the indeterminacy of microphysical events can be reduced eventually to the causal models of classical physics spring obviously from the philosophical belief that the Newton-Laplacean necessity is the only type of rational coherence. No matter what different forms this belief takes, whether it is stated in terms of the Kantian or Neo-Kantian philosophy or in the cruder form of mechanistic naturalism, the same conclusion is implicitly present: that the modes of thought formed in the seventeenth and the eighteenth centuries and characterized by the names of Descartes, Spinoza, Newton and Laplace are even today adequate instruments for interpreting the nature of physical reality and even the nature of reality in general. From this point of view the differences between naturalism and idealism appear less important; Kantianism, for instance, is nothing but a determinism of Newtonian time enclosed within the limits of the "phenomenal world," and the only "freedom" which is thus secured is the ghostly freedom of the "intelligible character" which, in being "postulated," is not only unverifiable, but by its timeless character even incompatible with the openness to the future without which it is nothing but an empty word. It is also

the advent of quantum theory. It can be hardly denied that the structure of microphysical events is hardly compatible with the concept of mathematically continuous time, and those who rejected the existence of the point-like instants and accepted "the quantum of time" (A. N. Whitehead) or "the unit of motion and change" (Paul Weiss) are on incomparably safer ground than their opponents. (Whitehead, The Concept of Nature. p. 162; Paul Weiss, Reality, Book II, ch. 7.) The article of Adolf Grünbaum, "Relativity and the Atomicity of Becoming" (The Review of Metaphysics, IV, pp. 143-86) would certainly require a detailed and careful analysis; it is, however, significant that in defending the mathematical continuity of time he fails to mention the quantum theory even by a single word and that he does not emphasize the macroscopic character of the theory of relativity. In the theory of relativity we deal with the physical events on the macroscopic level and this accounts for the fact that relativistic space-time can be considered as practically continuous.

worth noting that the tendency toward timeless idealism, the sympathy for the concept of mechanical causality, and the attempt to represent the universe as a changeless geometrical pattern — in which time would be nothing but a "world-line" without any intrinsic dissymetry and possibly even returning to itself in a closed curve as in the mechanical universe of Nietzsche — are associated in the minds of some physicists even today. 59

But is causal necessity really the only type of rational coherence? Precisely the opposite is true; only when causal connection is *not* conceived as a deductive implication, can it retain its dynamic successive character which appears as a foreign and unaccountable element in the necessitarian scheme. But this implies that *the possibility of the future*, instead of being a simple label for our ignorance, is real in a certain sense; in

<sup>59</sup> Kurt Gödel's essay "A Remark about the Relationship between Relativity Theory and Idealistic Philosophy and Einstein's comment about it (in Albert Einstein: Philosopher-Scientist, Library of Living Philosophers, edited by P. A. Schilpp, 1949) furnish a striking illustration of these tendencies. Gödel attempts to obtain "an unequivocal proof for the view of those philosophers who, like Parmenides, Kant and modern idealists, deny the objectivity of change and consider change as an illusion or appearance due to our special mode of perception." He also quotes McTaggart's article in Mind, 1908, "The Unreality of Time," in support of his view of the contradictory character of change (p. 557). It is hardly surprising then that the author considers the possibility of a round trip on a rocket ship in Wellsian fashion "into any region of the past, present and future and back again" and he even computes the fuel and velocity required for such travelling (pp. 560-61). The author obviously does not realize that his own language betrays him when he speaks about the possibility of "finding himself in the earlier period of his life" and doing something to this past person "which, by his memory, he knows has not happened to him"; does not it mean that it would not be a complete return into the past because the distinction between the "past" person and the "returning observer" would be maintained and therefore succession even in such a fantastic case is not entirely eliminated? It is even more significant that Einstein's comment about this essay is quite sympathetic (pp. 687-88), and that his main doubt about the objectivity, i.e., assymmetry of time is based on his belief, undoubtedly true in the classical corpuscular-kinetic picture, that "all elementary processes are reversible."

other words, that the future is only probably implied by the present, instead of being mathematically performed in all its individual details. The most popular argument of the nineteenth century determinists was that the affirmation of real contingency, no matter how small in nature, is equivalent to the recognition of a miraculous "creatio ex nihilo." It is true that the expression of Renouvier, "the absolute beginning" (le commencement absolu), easily suggested this misinterpretation; but it is also true that Renouvier himself, pressed in discussion by Fouillé, restated his thought in a clearer and less misleading way in insisting that his concept of "absolute beginning" is incompatible only with causality of the "causa æquat effectum" type, while it is not only consistent with, but even requires the more general type of causal connection. 60 But necessitarians, being aware that caricatures of their opponents are more vulnerable than the opponents themselves, picture a modern temporalist form of indeterminism as a simple re-edition of the absolute indeterminism of the medieval "liberum arbitrium" characterized by the story of Buridan's ass. William James, as early as 1890, unmasked "the ejaculation of Mr. Spencer" and the caricature of indeterminism by John Fiske, both claiming that the denial of necessity is equivalent to the affirmation of lawlessness in nature, which thus makes impossible all ethics, history, politics and laws. A specimen of Fiske's reasoning is given by James and is worth quoting again:

If the volitions arise without cause, it necessarily follows that we cannot infer from them the character of the antecedent states of feeling. If, therefore, a murder has been committed, we have a priori no better reason for suspecting the worst enemy than the best friend of the murdered man... (Principles of Psychology, II, p. 577).61

<sup>60</sup> Renouvier answered Fouillé's article "Les nouveaux expédients en faveur du libre arbitre" (Revue philosophique, 1882, II, pp. 585ff.) in Critique philosophique, 1883, II, pp. 49 ff. ("Les arguments psychologiques pour et contre le libre arbitre") where he modified his idea of "absolute beginning."

<sup>61</sup> The objections of Ernst Cassirer are directed against the same "unlimited indeterminism" (schrankenlos Indeterminismus) as those of Fiske and Spencer. (Determinismus und Indeterminismus in der modernen Physik, pp. 246-54).

It is evident that similar arguments are directed against absolute indeterminism which is not defended by anybody with the possible exception of Dirac, advocating "liberum arbitrium naturæ." One year before the publication of James's Principles Bergson had already pointed out that the real novelty of the present moment must not be conceived as "creatio ex nihilo";62 on the contrary, the emergence of novelty is nothing but a real continuity between the past and the present. This continuity is of a dynamic, successive type, or, speaking with Whitehead, a "becoming of continuity" instead of a rigid timeless implication of the Laplacean type. In the temporal continuity of a real process of causation - which should be distinguished from the spurious mathematical "continuity" of durationless instants the causal or "mnemic" influence of the past is not denied; but the present, though co-determined by the past, nevertheless contains an element of irreducible novelty. The individuality of a present event, or, better, its presentness would be irremediably destroyed without this double feature of novelty and its dynamic cohesion with the anterior phases. Still, it is the connection with, as well as the contrast to, the past which creates the specific presentness of "now." As far as the future is concerned, it is the future and not a disguised or a hidden present as in the necessitarian scheme; it will arise, it is not present. But because it will not emerge "ex nihilo," but out of a particular present state, its general direction is outlined and thus it possesses some predictable features, the more predictable. the larger the statistical complexes of the elementary events considered. Hence arises the possibility of practically accurate predictions of macroscopic events. The example mentioned by Ralph B. Perry belongs to this category; the predictability of any observable - and therefore macroscopic - particle is, as Louis de Broglie pointed out, only approximate and does not alter the basic contingencies of the elementary microphysical events of which a particle consists. The predicted path of a particle which appears in our macroscopic perspective as a sharp and precise line, will be really a tube, although a very tenuous

<sup>62</sup> Essai, pp. 125-26; Matière et mémoire, p. 204.

one, its transversal dimensions corresponding to the quantic indeterminacies of its positions. Even here, the anticipated "path of the future" consists really of the whole range of multiple possibilities which only in our dim, inaccurate and simplifying macroscopic perspective shrink to what we consider an infinitely thin line of "the only possible way." Thus the last psychological obstacle to the recognition of the inseparability of time and contingency is removed. This obstacle was our belief that the concept of "the only possible future" in spite of its intrinsic logical difficulties is at least empirically justified. Obviously, this belief, which is still shared by many philosophers, is nothing but an intellectual habit derived from limited and insufficiently analyzed experience.

Apparently, when Émile Boutroux in 1874 claimed that his "elementary variations" (les variations élémentaires) are so small that they escape experimental detection by the inaccurate instruments of that period, he hardly expected that within half a century the refinements of methods of observation would confirm his bold anticipations. Today, science is not ruined and "Reason" is not committing suicide, although the classical concept of causality is being given up, or, more accurately, being replaced by a redefined concept purged of the inconsistencies and absurdities of the old one. Temporalistic as well as modern philosophy of science returns only by devious and complicated ways to the evidence of our immediate experience - to one of a few evidences which are not deceptive: to that of a really growing world with genuine novelties emerging from past antecedents. Other deceptive features of our macroscopic experience together with the fixed Eleatic habits of our thought have for a long time obscured this evidence. In such a growing world every present event is undoubtedly caused, though not necessitated, by its own past. For, as long as it is not yet present, its specific character remains uncertain for one simple reason: that it is only its presentness which creates its specificity, i.e., brings an end to

<sup>63</sup> L. de Broglie, "L'Espace et le temps dans la physique quantique," Revue de Métaphysique et de Morale, 54 année, 1949, pp. 119-20.

its uncertainty by eliminating all other possible features incompatible with it.<sup>64</sup> Thus every present event is by its own essence an act of selection ending the hesitation of reality between various possibilities.<sup>65</sup> The terms "selection" and "hesitation" appear to be metaphorical and even anthropomorphic at first glance; in truth they express nothing but the ambiguous character of the unrealized future as well as its subsequent concrete realization. They describe complementary aspects of every temporal process: its indeterminacy and its creative character.

Does causality thus re-defined affect in any significant way the traditional problem of freedom? On this point opinions differ. Peirce's view was very definite:

On the other hand, by supposing the rigid exactitude of causation to yield, I care not how little — be it by a strictly infinitesimal amount — we gain room to insert mind into our scheme, and to put it into the place where it is needed, into the position which, as the sole self-intelligible thing, it is entitled to occupy, that of the fountain of existence: and in doing so we resolve the problem of the connection of soul and body.<sup>66</sup>

Against this view it is generally objected that on the macrophysical level the uncertainty of the future events practically disappears and, because even the smallest organisms are macrophysical systems, strict determinism on the biological level can and has to be maintained.<sup>67</sup> This conclusion, plausible as it appears, overlooks several important facts. First, the microphysical zone is not an isolated compartment of nature, since it is connected by innumerable causal links with the rest of the universe, including "the world of middle dimensions" to which animal bodies belong. Again, it was Boutroux who

<sup>64 &</sup>quot;Whatever is realized in any one occasion of experience necessarily excluded the unbounded welter of contrary possibilities. There are always 'others,' which might have been and are not." A. N. Whitehead, Adventures of Ideas, p.356 (Italics mine).

<sup>65</sup> H. Bergson, La Pensée et le Mouvant, p. 117: "Le temps est cette hésitation même, ou il n'est rien du tout."

<sup>66</sup> C. S. Peirce, loc.cit., pp. 42-43.

<sup>67</sup> For instance Erwin Bünning in his article "Sind die Organismen die mikrophysikalische Systeme?" (Erkenntnis, V. pp. 337-48).

pointed out that microphysical contingencies in spite of their minuteness may bring about considerable results by purely mechanical contre-coups.68 All breaks of equilibrium, all sorts of trigger-action consist of a sudden discharge of previously accumulated energy by a quantitatively insignificant agency. It is also unquestionable that the organic processes which are of the most vital importance occur on a scale not too remote from the dimensions of the microphysical world: for example the changes inside of the nuclei of cells. Are the organisms "multiplicators of atomic indeterminations," 69 i.e., systems of established arrangements by which microphysical contingencies are transmitted and increased up to the degree which makes them macroscopically efficient? On the higher animal level such established arrangements are represented by the neural mechanisms lodged in the cerebro-spinal system which can be set into operation by a very small signal impulse of the cortex. But no matter how small, this impulse is a physical event and. according to classical physics, strictly predetermined by its causal antecedents. When William James suggested that this central activating impulse has its source in the activity of consciousness 70 it was possible to refute him in the name of classical determinism which confined consciousness within the limbo of causal inefficacy. James himself was well aware of this difficulty, which stemmed from the fact that the only solution of the traditional mind-body problem compatible with classical physics was the theory of psycho-physical parallelism, according to which consciousness is only an inert epiphenomenon passively accompanying cerebral processes. To claim that the intellectual situation is the same today is to be completely

<sup>68</sup> De la contingence des lois de la nature, pp. 60-61.

<sup>69</sup> The term used by physicist Pascual Jordan in his articles: "Quantenmechanik und Grund-probleme der Biologie und Psychologie" (Naturwissenschaften, XX, Heft 45, pp. 815-21); "Quantenphysikalische Bemerkungen zur Biologie und Psychologie," (Erkenntnis, IV, pp. 215 ff); "Die Verstärckettheorie der Organismen," (Naturwiss., 1938, Heft 33.)

<sup>&</sup>lt;sup>70</sup> In the article "Are we Automata?" (Mind, 1879, IV, pp. 1-22) reprinted with some modifications in chapter V of The Principles of Psychology.

blind to all profound and revolutionary changes which have occurred in physics in the last fifty years. It is certainly significant that James' theory in its most important features reappears today in the following affirmation by Ralph S. Lillie:

There would seem to be no escape from the ascription of a certain variable element of spontaneity, non-conformity to rule, or creativity to natural processes in general. This condition reaches a maximum in the more complex types of biological causation such as human activity, although it is there limited in its possibilities by physical and physiological constants already established, as well as by social and other environmental conditions.<sup>71</sup>

Similar, though not identical views were expressed by Hermann Weyl, Arthur Eddington, Pascual Jordan and others.<sup>72</sup> There is no space left here for the detailed discussion of these views. Obviously, if a microphysical indetermination, occurring in the critical area of the organism, is an outer aspect of the spontaneity of consciousness or of the organizing vital activity, the traditional Cartesian distinction between consciousness and matter has to be profoundly modified. The revision of this distinction is an essential part of nearly every temporalistic philosophy. It is virtually implied in the affirmation of creativity even on the physical level.

No matter what the final destiny of the particular views. of Lillie, Weyl, Eddington and Jordan may be, two facts remain certain. First, any return to the Laplacean and Spinozistic modes of thought in physics appears to be extremely improbable. Second, it is only natural to expect that the impact of the new forms of thought created by modern physics and anticipated by the French and American temporalists will be felt sooner or later in all other areas of human knowledge. In the same way the influence of seventeenth century physics gradually penetrated biology, psychology and even history and

<sup>71</sup> In the article "Biological Causation" in Philosophy of Science, July 1940, p. 336.

<sup>72</sup> H. Weyl, Was ist Materie? Berlin, 1924; A. Eddington, The Nature of the Physical World, ch. XIV; the articles already cited of P. Jordan (see note 69).

laid down the foundations for the parallelistic and epiphenomenalistic solutions of the mind-body problem. Is it then surprising that the recent attempts of reformulation and new solution of the same problem distinctly depart from parallelistic epiphenomenalism? With the premises changed, the conclusions must be different too.

Today, as in the seventeenth century, physics leads the revolutionary onslaught on the traditional forms of thought. It is only realistic to expect that for some time the old intellectual habits will dominate large areas of knowledge outside of physics. This is especially true of psychology and social sciences where mechanistic determinism, though no more universally recognized, is still well entrenched. However, if intellectual development follows its normal course, the cultural lag between physics and other sciences will gradually disappear. It is possible that in the future the magnificent, though profoundly depressing vision of Anatole France, to which we referred in the first part of this article and according to which all particular events pre-exist in the network of lifeless eternity, will appear as strange as its extreme antithesis - the medieval story of Buridan's ass immobilized and dving because of its absolute freedom. Les extrêmes se touchent: the compact block-universe is as static and as unreal as the multiplicity of disconnected instants.

MILIC CAPEK

Carleton College.



# THE METAPHYSICS OF LOGICAL POSITIVISM

I

### THE LIMITED SENSE OF METAPHYSICS

In this article, as the title suggests, we propose to examine some aspects of logical positivism (or, as it is known more precisely, logical empiricism), for the purpose of endeavoring to discover the metaphysics it allows or requires. But before we can undertake even the first step in such a constructive task, we are placed under attack and obliged to defend ourselves. A contradiction confronts us, for, as is well known, logical positivism holds to the doctrine that metaphysics is nonsense.

We shall begin, then, with the metaphysical implications of the statement, "metaphysics is nonsense," and confine our attention to the negative aspects, reserving the more positive ontological and epistemological aspects for the next sections. In this section the argument against metaphysics being nonsense will have two parts, each of which will be aimed at showing that the position fails to take into account the importance of a certain distinction. We shall argue that logical positivism mistakenly identifies all metaphysics with (a) a transcendental metaphysics, and (b) an ostensive and explicit metaphysics.

(a) Traditional metaphysics usually has contained large proportions of transcendental elements, and it is these elements which logical positivism holds to be nonsensical. The charge is sustained. But in that case is it fair to equate metaphysics with transcendental metaphysics? To some extent, certainly; for logical positivism can only deal with the metaphysics it knows, and, in general, historical metaphysics is transcendental metaphysics. But, on the other hand, transcendental metaphysics may not be the only possible metaphysics. In order to sustain its position, logical positivism would have to demonstrate that no other type of metaphysics is possible, and this may be difficult, if it can be accomplished at all.

The logical positivists who started with the notion that metaphysics is nonsense are at this point obliged to be more temperate: now they would say that ontology is unnecessary.1 The positivists attack only one kind of ontology because evidently they can conceive of only the existence of one class of ontologies. This class is the set of ontologies contained under the theory of reality as a part. Under this theory, reality is a subdivision of being, and is opposed by another subdivision called appearance. Some things - change, for instance - are real (or unreal) while other things - such as permanence are unreal (or real). We are given the impression, whenever Carnap speaks of metaphysics or of ontology, that he knows only about this kind.2 Yet the ontology he accepts implicitly and unconsciously belongs to another set. Carnap wants, for instance, the position of nominalism without the term "nominalism." 8 That is, he wants the anti-metaphysical position implicit in nominalism, but he does not want it to be called nominalism. In this school, ontology is an ugly epithet, to be reserved for each wing to hurl against the other.4 He recoils with some horror at the prospect that if variables are to be interpreted realistically instead of nominalistically, physics would imply some degree of Platonic philosophy,5 and yet despite their pious approval of Peirce,6 the logical positivists overlooked the fact that Peirce believed and said precisely the same thing about physics.7

<sup>&</sup>lt;sup>1</sup> R. Carnap, "Empiricism, Semantics, and Ontology," in the Revue Internationale de Philosophie for January 15, 1950.

<sup>&</sup>lt;sup>2</sup> The range is from his attack on metaphysics in his little book, *Philosophy and Logical Syntax*, London, 1935, p. 15 ff. to the essay cited above, p. 31, et passim.

<sup>3 &</sup>quot;Empiricism, Semantics, and Ontology," p. 33, init.

<sup>4</sup> Op. cit., p. 32, n. 2.

<sup>5</sup> Op. cit., p. 32.

<sup>&</sup>lt;sup>6</sup> Op. cit., p. 39: A Tarski, Introduction to Logic, New York, 1946.
p. 14.

<sup>&</sup>lt;sup>7</sup> Collected Papers of Charles Sanders Peirce, Cambridge, Mass., 1935, 6.361. See also my Introduction to Peirce's Philosophy, New York, 1946, ch. VIII.

In any case, Carnap seems hopelessly confused about metaphysics. Clarification would involve a more extensive comprehension of the topic, including the notion of a set of ontologies contained under the theory of reality as the whole. According to this theory, reality is divided into parts. The parts are the universes: e.g., essence and existence, or possibility and actuality. This kind of ontology is no less ontological for being termed 'modality' <sup>8</sup> or 'modal logic,' as with Carnap. But surely we do not learn in this way that metaphysics is impossible, but just the opposite; for what we are shown is a disguised metaphysics.

Furthermore, a finite metaphysics may be possible; and if possible, would not be susceptible to the strictures laid against metaphysics in general by logical positivism. In short, in asserting that metaphysics is nonsense the logical positivists have identified a transcendental metaphysics with metaphysics, and failed to discern the possibility of a finite metaphysics. We shall see before we are done that logical positivism itself requires just a finite metaphysics.

(b) Logical positivism has identified the metaphysics it labels as nonsense with an ostensive and explicit metaphysics. By metaphysics it means the metaphysics of the profession of philosophy, as set forth in books and in classrooms. But this is a narrow conception of metaphysics, and assumes it to be the exclusive property of the metaphysicians. For if metaphysics is as pervasive as the presuppositions of other orderly fields, and even all other activities, would seem to indicate, then an implicit metaphysics must be more general than the explicit metaphysics could ever hope; and the latter is merely a small abstraction from the former.

It was in the attempt to make the implicit explicit that professional philosophy arose. Instead of confining its efforts to the discovery of abstract structures whose elements have some empirical justification, philosophy followed the fashion of the times and sought to find a place in its systems for the creatures of allegory and symbol; and so from Plotinus to Hegel the field

<sup>8</sup> R. Carnap, Meaning and Necessity, Chicago, 1947, ch. V.

became cluttered up with concrete figures (including those taken from the religious and the subjective worlds). The task of philosophy is not an easy one, and so extreme positions are frequently encountered. It so happens that in empirical science. bold hypotheses have frequently been the means of uncovering certain aspects of the natural world: while appeal to the same method in philosophy has merely led to the making of absurd statements by the metaphysicians, and particularly by those who have supposed that the method of philosophy itself is entirely subjective. Unlike the procedure in science, however, the whole of philosophy is held responsible for the erroneous statements made in some quarters. Science has been identified with the doors it opens, philosophy with its blind alleys. But we do not need to confuse metaphysics with the errors of some metaphysicians. That difficulties have arisen in the efforts to discover the implicit metaphysics is not sufficient ground for the condemnation of metaphysics in general, or any justification for identifying it with its non-empirical aspects.

We see in the above two distinctions, namely that between a transcendental and a finite metaphysics on the one hand, and between an explicit and an implicit metaphysics on the other, that logical positivism has identified the metaphysics it condemns with the transcendental and the explicit varieties. In dimissing a metaphysics so constituted, it seems quite properly to have got rid of the unwanted elements; but the fact is that sufficient remains to sustain the activity on a basis which logical positivism can endorse.

A transcendental explicit metaphysics, corresponding to nothing finite and implicit, seems to be the result of the practice of an unbridled rational dogmatism or else of that of an uncontrolled empirical scepticism.

These methods lead, strangely enough, to much the same sort of result. To suppose that reason alone in general, and one's own reason in particular, is the necessary and sufficient method of arriving at indubitable knowledge is to commit the error of rational dogmatism. It may of course lead to any sort of theory. But then empiricism, too, has its pitfalls. Reliance

upon the senses alone, and upon one's own senses in particular. to the exclusion of any cross-reference which inference may afford, is sure to end in the denial of anything objective corresponding to the senses. That metaphysics is nonsense has not been demonstrated, but only that a transcendental and explicit metaphysics is nonsense. What has been shown, in other words, is that reason alone or sense experience alone leads to metaphysical statements which do not correspond to anything the method of logical positivism can endorse.

Logical positivism as it stands contains statements of a metaphysical character.9 "Metaphysics is nonsense" is metaphysics. There are no revolutions in metaphysics; there are only cautions. A warning carried too far in this field leads to the commission of the very error against which the warning was directed. The nominalism of considering all metaphysics as nonsense is now painfully familiar. This is a metaphysical position, and no less one for not being openly acknowledged. There does not appear to be anything in sense experience corresponding to the abstract structures of nominalism. If logical positivism is to have a metaphysics, this would hardly appear to be the suitable one for it. For nominalism is the metaphysics which includes a self-denying axiom. The question remains, however, whether a finite and implicit metaphysics does exist which can stand in conformity with the rigorous demands of logical positivism. Throughout the following pages this question is answered in the affirmative.

#### II

## THE RAMIFIED THEORY OF LOGICAL POSITIVISM

In this section we propose to set forth the general principles of logical positivism, and then the ramified interpretation of those principles in the light of the position set forth in the preceding section.

<sup>&</sup>lt;sup>9</sup> J. R. Weinberg, An Examination of Logical Positivism, New York, 1936, ch. VI, esp. p. 175.

The principles of logical positivism fall into three distinct though related groups. The first group concerns the level of logic alone.

- (1) Logic presents the essential features of language.
- (2) Language is a tautological system.

The second group concerns the level of empiricism alone.

- (3) The world consists of atomic fact.
- (4) True propositions are those which refer to atomic fact. The third and last group consists of the principles which relate the elements of the first two groups.
  - (5) Language resembles the world.
  - (6) Empirical reference can be shown by logical analysis.

The theses of logical positivism which do not refer specifically to metaphysics are hereby omitted, but they may be mentioned. They include the thesis of unified science, and that of radical physicalism. Since the unification of the sciences is to be brought about by the reduction to physics of all the other sciences, the two principles can be resolved into one, and that one left to the empirical sciences to execute if indeed it is to be done at all.

Before introducing the ramifications formally by means of extended principles corresponding to the above set, we may introduce them informally in commentaries. We may add that in these commentaries the first suggestions are made of a finite and implicit metaphysics which is consistent with, and allowed by, the principles of logical positivism.

- (1.) Logic presents the essential features of language. By 'language' here is meant 'system'; a language is an abstract symbolic communication system. Logic is by this theory thus redefined as the theory of abstract systems. The essential feature of systems so far as their internal relations are concerned is their logical nature. Linguistic systems of communication assert nothing in themselves that is not logical, and they are not empowered in themselves to go beyond logic.
- (2.) Language is a tautological system. This principle follows from the first, evidently from the last part of the previous

discussion. 'All X is Y' is a formal proposition whose conventional meaning is trivial; whereas when we assign values to X and Y the proposition can have a meaning which is no longer conventional and may be significant. Thus if we substitute 'men' for 'X' and 'mortality' for 'Y', we have 'all men are mortal,' which is a material proposition to be considered for its content; but 'Either all X is Y or there exists at least one X which is not Y' is to be considered purely in virtue of its form.

The subject, the knower, the promulgator, of propositions drops out, leaving only the system of propositions. Thus we have, in Weinberg's admirable phrase, "a solipsism without a subject." <sup>10</sup> The entire involvement of subjectivism is here at one stroke removed. For it is truth we are after, and promulgation is unrelated to truth.

But there is more to the story, for by releasing the proposition from its psychological bearings, it is admitted to be independent, and assumes the status of all universals in the theory of metaphysical realism. Indeed the closeness of logical positivism to metaphysical realism is obvious, provided only that logical positivism abandon the absoluteness of its antimetaphysical position, and realism abandon its transcendental nature and admit only those universals for which there is some logical or empirical evidence.

- (3.) The world consists of atomic fact. That is, the world is whatever it is, and is not made into anything else by the circumstances surrounding our perception of it. There is a world to be known which is no different for being known. Once again, then, the subject is eliminated, and the relation studied is that between a real world and a real system, not between a knower and a known. The world consists in a set of knowable facts which are eminently capable of isolation and systematic representation.
- (4.) True propositions are those which refer to atomic fact. Only one world exists: the world of atomic fact; but more than one proposition exists for every atomic fact, and presumably

<sup>10</sup> Ibid., p. 68.

more than one logical language for every set of atomic facts. False propositions exist, more false ones than true ones — Which are the true ones? The question can only be answered by planned inquiry: the true ones will be those which refer to atomic fact.

- (5.) Language resembles the world. Languages grew up in answer to the need to understand the world, to explore it, and to manipulate and control it. They are partly the result of experience with the world, having been revised, corrected and extended in accordance with such experiences. There is some reason to believe, then, that they have a structure, and not merely elements, corresponding to that of the world.
- (6.) Empirical reference can be shown by logical analysis. The self-identical elements can have an extensional meaning without impairment of the tautological property. We have already seen that the substitution of values for the variables in the universal affirmative proposition in (2.) did not change the formal properties of the proposition. This would be equally true of the tautological principle, for "either horse or horse implies horse" has the same tautological meaning as the same proposition stated in terms of the three variables, p,p and p.

So much for the principles. Now we must turn to the ramified theory, and this is best stated as a set of additional corresponding principles. The ramified theory in this second set of principles purports to extend the original set of principles of logical positivism in the light of the metaphysical commentary, and with the addition of a rigid and analytical scientific method whose precision was developed through the extension into controlled experimentation of this same set of principles (plus some others). For the sake of comparison, the second set of principles will be given corresponding numbers.

- Mathematics contains the essential features of systems.
- (ii) Mathematical systems consist of tautologies.
- (iii) Existential propositions have a reference in empirical data.

- (iv) Mathematical equations refer to instrumentally-discovered data.
- Mathematics and the instrumentally-discovered data are isomorphic,
- (vi) The data can be interpreted by means of equations.
- (i.) Mathematics contains the essential features of systems. The development of logic in any topic involves the retreat of psychology. Admittedly, the knowledge of anything depends upon its being known that is a truism; and the holding of knowledge is a capacity of minds; but that being is independent of knowing is a theory held out by the very existence of internal relations. The more complex a structure is and the more internal relations it has, the more its being is manifestly self-dependent.

Now, in a mathematical system we have an advanced logical system, an abstraction whose structure of theorems, definitions and deductions depends only upon postulates whose set-extent and truth-conditions may remain undetermined. Knowledge is here reduced to a minimum, and structure is all-important. We define logic as the theory of systems and mathematics as all deductive systems.

(ii.) Mathematical systems consist of tautologies. We introduce here the principle of the autonomy of levels. A mathematical system with its elements is closed under its set of operations. The origin of the elements and operations is a matter of indifference to the nature of the system as such, and even to the performance of its operations. Truth by definition is formal truth within the kind of logical system that mathematics preeminently is.

Tautological propositions contain only class names and refer only to logical states of affairs. This situation has occasioned considerable misunderstanding, for it has been assumed that what refers exclusively to logical states of affairs has no reference, on the confused psychological assumption that logical propositions and their references are together exclusively psychological. But the holding of logical propositions is no more — and no less — mental than the holding of empirical proposi-

tions whose external and independent world-reference is obvious and clear cut.

- (iii.) Existential propositions have a reference in empirical data. Although all propositions of necessity contain class names, existential propositions contain proper names as well, and are regarded as existential because of their reference. We shall return to this point later on, 11 meanwhile defining existential propositions as those which have a class containing a member which is unique. Empirical data are objects and events analyzed by means of instruments, e.g., the microscope, the spectroscope. An empirical datum from the point of view of propositions can be specified by dated universals, e.g., blue here-now, circle there-then. 12
- (iv.) Mathematical equations refer to instrumentally-discovered data. We are here at a deeper level of analysis. For propositions we have now substituted mathematical equations, and for atomic fact we have instrumentally-discovered data. What we have stated is a description of science at an advanced stage of development. The same is possible in metaphysics, for the same sets of conditions prevail: an empirical field and an abstract structure to account for the field.
- (v.) Mathematics and the instrumentally-discovered data are isomorphic. That is to say, mathematical systems and the relations between the data are similar in form. We make an ontological model for the domain of existence. It is not true that there is only one ontology corresponding to any given domain; but of any two, one must serve the purpose more adequately than the other. The perfect model is yet to be found.
- (vi.) The data can be interpreted by means of the equations. We do not know what the data mean until we have found some abstract formulation that fits them. There are no data, only the indescribable flashes of phenomena, apart from their place as the elements of some system, for by themselves they are meaningless. Their discovery is governed by logic as well

<sup>11</sup> See Section IV.

<sup>12</sup> Cf. Bertrand Russell, Human Knowledge, New York, 1948, p. 84.

as by the necessity of conforming to the data. The systems are made up of equations and text. Hence logic and fact have their separate lines to metaphysics. In the next two sections we shall see what these are.

## III

## THE METAPHYSICS OF LOGIC: ONTOLOGY

In this section we consider the metaphysics of logic to be ontology, and in the next section we shall consider the metaphysics of empiricism to be epistemology. Both subdivisions of metalogic, the metaphysics required for logic, will be ordered in accordance with what is allowed and even demanded by logical positivism.

Metaphysics by seeking conformity with logic meets the demands of empiricism as well. It obtains the requirements of logic through pure logic and mathematics, and the requirements of empiricism through applied logic and scientific method. Thus 'metalogic' is a proper designation for the metaphysics of logical positivism.

Metaphysics is a field of inquiry and logic is the method employed in that field. Every method must have presuppositions of a metaphysical nature and a field in which to operate. This makes logic and metaphysics circular, for logic depends on metaphysics (for its presuppositions) and metaphysics depends on logic (for its method). We can only escape the difficulty by concentrating on operations. The latter are persistent and progressive: conclusions are always subject to change whereas the method and its presuppositions lend themselves only to amendment. We have no right to hold onto anything more than the method itself, together with its presuppositions, and the existence of a field of its operations. We can hardly escape the consequences of these minimal involvements and at the same time make any sense out of the logical method.

The fact that logic is the method of investigating metaphysics reveals special difficulties. For it seems we can investigate metaphysics only by making special metaphysical assumptions. Here we must be governed by logic: we shall admit a presupposition if and only if we can show that it is required for the specialized inquiry at hand. Thus we see that logic appeals to metaphysics in one way and metaphysics appeals to logic in another. Our only relief is that the appeals are made in different ways.

The result is the curious one arrived at by Wittgenstein. Philosophy — metaphysics — ontology can now be expressed in logic. The key to the bridge is the theory of systems, systematic logic. Metaphysics is the world from some logical point of view, set forth in a system. Philosophy seeks mathematical precision but uses common sense language, in order to include the sweep of connotation. The result is that every ontology, since it is a logical system presented in the terms of everyday discourse, contains oracular elements: a prophetic notation of rigorous logical laws. Philosophy is so general by nature that the stricter the forms of its expression the vaguer it becomes — but also, we may add, the more suggestive.

The ontology required for logic is the proper ontology. The same logical state of affairs can be expressed in a number of different ways, and this situation reveals ontological assumptions underlying the logic. This is made evident, for instance, in the equivalence of propositions by the method of conversion, obversion, and contraposition;  $^{13}$  in what Wittgenstein has called "the disappearance of the logical constants";  $^{14} - p$  becoming p; and in the reduction of the truth-functions to joint denial or alternative denial.  $^{15}$ 

The meaning of logical positivism, or logical empiricism, is that ontology must not extend beyond logic without some logical necessity. For ontology, there is a kind of Occam's Razor of logic. The obverse principle also applies, however, and ontological entities must be multiplied at least to the extent demanded by logical necessity. The two principles can best be combined in

<sup>&</sup>lt;sup>13</sup> E.g., Cohen and Nagel, Introduction to Logic and Scientific Method, New York, 1934, pp. 57 ff.

<sup>14</sup> Tractatus Logico-Philosophicus, London, 1933, 5.441.

<sup>15</sup> W. V. Quine, Mathematical Logic, Cambridge, 1947, p. 48.

the statement that ontological entities must be multiplied just to the extent demanded by logical necessity. It is logic and nothing else which properly requires that ontology extend beyond logic and which determines how far that extension should go.

The determination begins with the class considered as a sign. Once a sign has been given a meaning, however arbitrary, it leads a life of its own. This is true, irrespective of whether the sign refers to something or some set of things in the actual world, or to a connection between other signs. Factual signs, as we shall term the first group, are recognized in logic as being classes of individuals; classes alone but not individuals alone, except as classes of individuals alone. As to the second group termed logical signs, these have minimal meanings, but meanings they still are; and even grammatical connectives are meaningful.

All signs can be considered in abstraction from the elements in the actual world or from the state of affairs in logic which first suggested the necessity for them. There is an aura of absoluteness about all abstractions. They stand somewhat apart from the fluctuations of time and the distortions of space. The problem is, how to get rid of all transcendental presuppositions in a finite ontology. Clarification is elicitation; to make clear what we are talking about is to draw out details we had not known were involved, and some of the details are of the nature of qualifications. Hence the adoption of such a procedure at this point may exhibit limitations which will save the position. We intend to suggest that ontological import does not have to convey transcendental meaning. It has so often in the past happened to do so that the identification is habitually made, and a refuge from the combination is sought in the particular and individual world of singular fact. But logical meaning need not be reduced to factual meaning in order to eliminate the infinite nature of abstractions, for there exists a finite logical meaning as well. Moreover, every such reduction throws out the very subject-matter which is the most in need of explanation and analysis, and is therefore self-defeating. It is the paradoxical custom of radical empiricism to practice a rigid metaphysical economy which begs more than it abandons, and in the end runs invisibly wild.

The position toward which the argument is tending is best illustrated with model interpretations.

Let us take the grammatical connectives 'and,' 'or' (or 'either-or'), 'if ... then,' and 'not,' as a set of logical constants. First of all, these four can be reduced to two. For 'if ... then' we substitute 'and' and for 'or' we substitute the appropriate 'ands' and 'nots'; 16 we are left by this reduction with 'and' and 'not.'

'And' has both a factual and a logical meaning, and these two meanings are distinct. The logical meaning of 'and' provides the definition of a collection; 17 for instance, 'a and b and c' is a collection, in which we have nothing but the terms and the grammatical connective. The statement that 'and' defines a collection is logically true. But there is also a factual meaning of 'and.' The factual meaning is defined ostensively by spacetime togetherness. That this book and this cigarette box are contiguous considered as an actual state of affairs exemplifies 'and' in factual truth. Now the lesson of scientific method is that when there is a correspondence between logical truth and factual truth, we are in the presence of ontological elements. Here the term, 'ontology,' which has had so bad a history, is shorn of its transcendental and infinite implications and confined to the field which Carnap once so well defined as the systematization of scientific knowledge, and so seldom returned to examine.18 What precisely we mean by 'ontological elements' will become clearer as this section develops.

<sup>&</sup>lt;sup>16</sup> See, e.g., W. V. Quine, Elementary Logic, New York, 1941, pp. 14 ff., and 20 ff.

<sup>17</sup> B. Russell, Principles of Mathematics, London, 1937, p. 69.

<sup>&</sup>lt;sup>18</sup> In castigating metaphysics as nonsense, he says, "I do not include in metaphysics those theories — sometimes called metaphysical — whose object is to arrange the most general propositions of the various regions of scientific knowledge in a well-ordered system." R. Carnap, Philosophy and Logical Syntax, London, 1935, pp. 15-16. The point needs to be clarified for terms before we are ready to treat of the more complex propositions.

We shall find that the same principles hold in the case of 'not.' The logical meaning of 'denial' determines the truthfalsity function of coherence. A statement and its denial are inconsistent, and consistency is the governing function of coherence within a logical or mathematical system, or of any system which aspires to logical coherence. 'Not' is the notion of falsity, but the use of the tilde before a false statement renders it a true one. 'Ice is hot' is false, but '- (ice is hot)' is true. The factual meaning of 'not' denotes absence or positive otherness. Where x is any actual thing, -x denotes anything else from the point of view of x. Here, too, as in the case of 'and,' we have a correspondence between logical truth and factual truth; and so ontology arises as a description of this state of affairs. In general it could be said that the legitimacy of ontology as a field of inquiry is to provide for just those situations which Russell's Theory of Descriptions fails to take into account.

The objective correlates of the logical constants, discovered in the relation between the logical and factual references of grammatical connectives, constitute an ostensive definition of the type of elements to be found in the finite ontology. A system of ontology would not be so simple, but it would be a complex constructed of such simples. In order to exemplify this point, let us elaborate the construction of our model interpretation by progressing from a consideration of the grammatical connectives to the elements of the Boolean algebra.

The binary operations of the Boolean algebra, indicated by 'meet' and 'join,' correspond to our 'and' and 'or.' <sup>19</sup> Then by means of suitable combinations of these functions the calculus of classes can be derived. To see the ontological implications of the Boolean algebra, we have only to read the various types of combinations made in terms of 'meet' and 'join' as similarities and differences. Then with two more steps we are in the midst of an ontology.

<sup>&</sup>lt;sup>19</sup> Birkhoff and MacLane, A Survey of Modern Algebra, New York, 1948, p. 318.

The first of these steps is to notice that the similarities tend to persist and the differences to change. This distinction gives to each of the basic relations an altogether separate character. For persistence and change have their own set of properties. We notice that what is persistent is also abstract and general, while what is changing is not. On the other hand, the changing is characterized by a vividness and an immediacy of effect that the persistent does not enjoy. The persistent does not involve any elements of change; whereas change is not possible except from one persistent element, or a set of persistent elements, to another element or set of elements.

The second step involves an answer to the question, similarities and differences of what? If we use the broad term, 'quality,' here to cover all types of static and dynamic values, indeed everything that is not covered by the term 'logic,' then we can say, similarities and differences of qualities. The similarities persist in the recurrence of the qualities, and the differences occur in the context of space and time of the recurrent qualities. In postulating logic as the basis of mathematics, we have learned the lesson of the greater generality of difference. For instance, in the tautological Boolean function

$$A \land A \rightarrow A$$

we have a statement of greater generality than in the algebraic equation

$$A \times A = A^2$$

It should be noted, however, that while v has been said to denote "- or . . . . ", and  $\Lambda$  to denote "- and . . . . " this is a similarity rather than an identity; for while in elementary algebra it is true that

$$A + A = 2A$$

in Boolean algebra

$$A v A = A$$
.

The reduction of mathematics to its lowest terms in the Boolean algebra teaches us that it is impossible not to assert something in a proposition. If we interpret the proposition as a statement rather than as an assertion, the contention can be upheld. For a statement promulgates, even when it does not

carry the presumption of truth-value. The minimal ramifications of logic are ontological. Logical positivism has been in the habit of testing the old metaphysics against the new logic and of finding the results unfavorable. And the conclusions have been regarded as final for all metaphysics. We can, however, more suitably have a new metaphysics and test it against the new logic. The results, we shall see, are somewhat different. Metaphysics can be treated like logic or like empirical science. We do not abandon logic when old conceptions appear insupportable, we revise it and emerge with some new conceptions which we think capable of holding water. In physics, we subordinate Newton, provisionally accept Einstein, but keep the method intact and with it the field of its operations. If we admit a logical method, then we can admit also an empirical field proper to logic, and this field is ontology.

#### IV

## THE METAPHYSICS OF EMPIRICISM: EPISTEMOLOGY

The study of epistemology arose as an attempt to satisfy the demand for ontological proof. The first efforts at proof were feeble enough to indicate that something was wanting. Self-evidence, far from being a satisfactory proof, was good ground for suspicion: when anything is asserted to be true because it appears obvious, it is time to watch out. The enormity of the implicit ontological presuppositions underlying the critical philosophy of Kant ought to provide a needed lesson for everybody. Russell points to the fact that self-evidence lurks in the most unsuspecting places, even behind the law of contradiction.<sup>20</sup> On the other hand, however, he has also shown the inadequacy of extreme empiricism.<sup>21</sup> Somewhere between these limits the truth must lie. There is a baffling factor lurking somewhere here.

<sup>&</sup>lt;sup>20</sup> Principles of Mathematics, London, 1937, p. 455.

<sup>21 &</sup>quot;Logical Positivism," in the Revue Internationale de Philosophie for January 15, 1950.

It does often seem as though epistemologically the statement that "metaphysics is nonsense" means that we are permitted to make inquires but not to reach conclusions, or that we are to investigate a subject-matter but not to employ its proper terminology.<sup>22</sup> It is as though a license had been issued for the examination of the knowledge process, on the express condition that it must be a failure. Just how much metaphysics do we need to make empiricism possible? That is the basic question. If there is nothing in the empirical world capable of serving as an endorsement of the principle of empiricism, if, that is to say, empiricism is not self-validating, then its justification must lie in logic and the metaphysics of logic. We shall return to this theme.

In the meanwhile it is worth observing that self-evidence is not the most suspect among the older forms of proof. The positivists like everyone else are at their best in their constructive efforts; however, they do have a case to make out in their opposition to the nonsense of metaphysical proof. The kind of assertion they love to attack is familiar enough.<sup>23</sup> Usually the statement of the assertion is considered sufficient to indicate its nonsensicality, but we may go a little further. Three examples chosen at random should suffice.

Let us begin with Aquinas. Theology is a fertile field for this sort of thing. We open the Summa Theologica at random and find ourselves in an argument for the goodness of God. God is good because He is the "first effective cause of all things." <sup>24</sup> But the whole cannot be adduced in support of one of its parts in any unassailable argument. Things are good to the extent to which they desire God, and therefore God, the object of this desire by things which are good, is Himself

<sup>&</sup>lt;sup>22</sup> See, e.g., Louis O. Kattsoff, A Philosophy of Mathematics, Ames, Iowa, 1948, p. 2. Kattsoff divides the philosopher's problems into two groups: metamathematical and epistemological. The typical problem in the former group, whose name is taken from Hilbert, makes it clear that the subject-matter is metaphysical, but that the dread name must be avoided at all costs.

<sup>23</sup> But see Weinberg, op. cit., p. 175.

<sup>24</sup> I. q. 6, a. 1, Resp.

good. "for the very thing which is desirable in it [i.e., the nature of the good] is the participation of its likeness." When the reasoning is inspected closely, it turns out that the goodness of God is invoked to prove the goodness of God.

Our second example is taken from Spinoza. In seeking to prove that the universe is a unity, he posits an all-embracing substance, then argues that everything that is not substance as such consists in some modification of substance. However, it so happens that the definition of 'substance' and the conception of substance together make up a circular argument. Substance is defined as "conceived through itself" and substance alone has this property: whatever is conceived through itself is substance. If this were not true, then anything that existed besides substance would limit it; so that "conceived through itself" would not apply. So the monism depends upon the definition, and this might be well enough were it not intended to be regarded as a proof consisting of a priori reasoning from postulates considered to be self-evident.<sup>25</sup>

Our third example is taken from Paul Weiss. Men are not social in essence, he argues, otherwise embryos and infants would not be human.<sup>26</sup> Earlier we have been told that infants are "not social to begin with" and that "man has a nature before he attains the status of a social being."<sup>27</sup> We could dismiss this argument on the simple basis of empirical evidence to the contrary, for what could possibly be more social than a newly-born infant who is helplessly dependent upon his mother? But this after all may be a matter of difference in definition, for Weiss may mean that a man is not social until his relations with other human beings are deliberate and conscious. He certainly does mean that the human is the individual. In other words, embryos and infants are human but not social, therefore the predicate "human" does not involve the predicate "social." The a priori argument rests upon an imperfect knowl-

<sup>&</sup>lt;sup>25</sup> See, e.g., C. E. M. Joad, Guide to Philosophy, New York, 1936, pp. 122-125.

<sup>&</sup>lt;sup>26</sup> Man's Freedom, New Haven, 1950. Recapitulation 16, p. 310. <sup>27</sup> Ibid., p. 37.

edge of what constitutes the "social." Can embryos and infants get along without the aid of adults? It would seem not; not, anyway, and be what we call human. On those rare occasions when human children were raised by other animals, when found they corresponded to nothing we call human, for they had no language. Likewise, Weiss mistakenly assumes that the social is the group: a mere assemblage of persons. He insists that "Everyone retreats from society many times during the day" 28 and it is evident that he means retreats into solitude. But in solitude we are still surrounded by the tools and institutions of culture. A man alone in a room that he did not design or build is leading a cultural and therefore a social life in a sense. The social is the cultural. The abstraction of the social apart from tools and institutions is an a priori one, and could not occur by induction from empirical data.

What we are contending here, however, is not that these propositions of the metaphysicians are not true but that they are not proved. The absence of proof does not demonstrate falsity. Metaphysics is a postulate-set, and the truth of postulates cannot be demonstrated inside the system in which they serve as postulates. Theorems can be proved, of course, but it is seldom admitted and quickly forgotten what the proof of a theorem involves. Theorems have the coherence of consistency, but they do not have the truth of correspondence outside the system in which they have been proved merely because they have been proved inside, not, that is, unless the system as a whole has. The postulates, it must be remembered, have not been proved unless self-evidence is accepted as a proper proof; yet the correspondence of the theorems to relevant material outside the system rests upon the assumed principle that what follows from a true proposition is true. Is what follows from a self-evident proposition true, or what follows from one whose truth rests on theological authority or on conventional definition? These kinds of tenuous proof are misleading. But the proofs of metaphysics are precisely of that nature; they seek to prove what is taken as self-evident, and the proof depends

<sup>28</sup> Ibid.

upon the self-evidence of the truth of the definitions, or on some similar invalid method.

The logical positivists have concluded too much from the success of their attack upon bad proofs. They have concluded, in short, that metaphysics has nothing to prove — no subject-matter. It is as though no invalid arguments were ever constructed in defense of a valid position, or that a field like metaphysics which presumes too much could not legitimately make any presumptions at all. That metaphysical proofs may be nonsense does not constitute a proof that metaphysics itself is nonsense. The occasion for epistemology has been enough to guarantee its failure. Under the scrutiny of logical positivism, ontology must be held down to what is logically required, to a kind of ramified logic, but epistemology disappears altogether. Its province is taken over by empirical psychology <sup>29</sup> on the one hand and by semantics on the other.

Some logical positivists have misunderstood this latter consequence, and have reintroduced the epistemological subjectmatter through the analysis of meaning. Now, it so happens that meaning has two parts: a relation between sign and object and another between sign and subject. The first is sufficient for logical and mathematical systems. Wittgenstein has argued that the second is epistemological, and Carnap has fallen into the error of reintroducing an emphasis upon it. But if, as Wittgenstein would have it, the picture of reality is a locked logical system, then the subject is not the ego but merely the ability to hold the picture and relate its elements. The relation between sign and object is a form-content relation, that between subject and sign is a sense relation. Signs make impressions on the senses, so that this relation, too, can be treated objectively. if it is to be treated at all in connection with logical positivism. But that is not the way Carnap treats it. He uses the term 'pragmatics' to cover the entire reintroduction of the subjectivelyoriented epistemology, which is no less a blind-alley in this context than it ever was in any other.

<sup>29</sup> Wittgenstein, op. cit., 4.1121.

If, then, we admit to semantics all questions relating to the theory of signs, and to empirical psychology all questions relating to the theory of subjects, what becomes of epistemology? Carnap has not provided the answer by taking over from Morris the pragmatics of Peirce, for Carnap does less than James with it. Indeed, after introducing pragmatics in the first of his series of volumes <sup>30</sup> it is hardly ever mentioned in the subsequent ones.<sup>31</sup>

Let us return to the original occasion for epistemology, which was our starting point. We have said that it arose as an attempt to satisfy the demand for ontological proof. When this fact is recognized, epistemology assumes a position subordinate to ontology; but when it is overlooked, then, epistemology merely expresses an ontology in complicated and disguised language, as in the case of the critical philosophy of Kant. These observations lead us to the contention that there is no such thing as epistemology alone. This contention can be supported by two additional points. In the first place, we do not find in our investigations of the foundations of knowledge anything that we can regard as reliable and ultimate; and in the second place, we do not allow ourselves the means to put together what we do find, when we are arbitrarily limited to epistemology proper. To be forced to the choice between settling for an epistemology which does not allow the development of an ontology, and settling for an ontology which not only allows but requires an epistemology, means to find the latter the more advantageous. Any epistemology which requires that the world of the known depend upon the experience of the knower is of the former type. Any ontology which requires that the world as known be selected by the perspective of the knower but not determined by him is of the latter type.

We have promised to hold our metaphysics down to the requirements of logic. What is the epistemology that logic requires?

<sup>30</sup> Introduction to Semantics, Cambridge, 1946, pp. 8 ff.

<sup>31</sup> Formalization of Logic; Meaning and Necessity.

We start with facts which are the product of experience. Logic is not directly concerned with the difficulties inherent in the analysis of the nature of experience, but only with its products. Here we encounter a curious obstacle. Every fact of experience is ineluctable. We can have experiences, but we cannot know that we have them except through the medium of language. The existence of non-linguistic knowledge is highly debatable. The subject having experiences can no more tell us about them than he can tell himself. For the experiences that we know we have are those we recognize in ourselves and communicate to others through the medium of language. Some realists 32 as well as the logical positivists 33 have taken cognizance of the necessity of language to the recognition of fact. Russell has expressed the relation from the point of view of the fact, when he says that "whatever implies anything is a proposition," 34 thus indicating the propositional import of all things and events. For logic to be viable there must be real events whose effect upon us is that of real experiences, and a real language system in which those experiences can be more or less adequately expressed.

It will be noted at once that there is a hiatus between language and the event-meaning of the experiences which the language endeavors to express. Put another way, we can say that there is a gap between sense data and system-elements which has never been crossed. It does not at the present time appear possible to cross. A peculiar property of logical systems is that they can be completely analyzed into parts, i.e., relations. We call this in logic the search for simples. The simplest properties are similarity and difference. In logic the part is arbitrary but not the whole: there is no widest system or largest number. The epistemology of logic is the only field in which the structure and its function are so close.

 $<sup>^{32}\,^{\</sup>prime\prime\prime} There$  are no self-contained matters of fact capable of interpretation apart from their place as elements in a system." — A. N. Whitehead.

<sup>&</sup>lt;sup>33</sup> R. Carnap, Foundations of Logic and Mathematics, Chicago, 1947, p. 7

<sup>34</sup> Principles of Mathematics, London, 1937, p. 16.

To sum up, far from furnishing ontological proof, epistemology itself requires a minimal ontology. The existence of similarity and difference makes experience, and hence knowledge derived from experience, possible. Epistemologists would have us believe that the process of knowing interferes with the objects known and colors them to such a large extent that a part if not the whole of what we know is our own knowing. But, as Wittgenstein has pointed out, we do not see our eyes but other things through them. He leaves us a minimal epistemology consisting of a perspective from which knowledge readings are taken, and though we may specify the readings by naming the instrument, the readings are taken from the instrument, they are not readings of it.

Logical positivism holds that questions of fact must be referred to observation, and that questions of logic must be referred to consistency. The metaphysics of logical positivism holds in addition that logical systems can be constructed with the facts that observation endorses. To the development of the implication inherent in this latter statement we shall next turn our attention.

#### V

# THE LOGICAL METHOD

Metaphysics, we have agreed, is an empirical field of inquiry, and logic is the method employed to explore the field. The field contains relations but also other empirical elements — qualities, for instance. Hence metaphysics is not to be limited to logic but to the metaphysics required by logic. Logical positivism is not to be understood as dictating "sovereign principles destructive of philosophy but as precepts of limited jurisdiction within philosophy." <sup>35</sup> In philosophy, whatever is not factual is logical. And logic provides the only method for getting at the facts. Logic and fact overlap: each contains more than the area they have in common. This leads to the

<sup>35</sup> W. H. F. Barnes, "Is Philosophy Possible? A Study of Logical Positivism," in *Philosophy*, XXII (1947), p. 45.

quasi-independence of each, and requires the two levels of exploration, the logical and the empirical. It is the ground they do not have in common which makes a problem for their interrelations. Then again, facts do not move outside their autonomous realm; only logic is capable of such a maneuver. Scientific experimentation is merely advanced applied logic. Hence the empirical is surrounded by the logical: above, by tautologies, below by contradiction. It is moreover permeated by probabilities.

All this is of course imperfectly understood. The mediating role of abstract structures or logical systems is neglected by those whose implicit nominalism leads them to suppose that we go directly from facts to the action they dictate. Facts suggest or inhibit action, they never call for it directly. Indeed we do not go from facts to action but only from facts to theory and from theory to action. When facts seem to be best accounted for or explained by means of some particular theory, we do not call it a theory but a law; and it is the law which calls for action. The curious thing is, however, that although we act in terms of law and not of fact, we cling to the fact over the law. For when a fact and a law conflict, we save the fact. The procedure is correct whatever the reasons for it, but our reasons for it are wrong. Facts are the reliable elements. and laws are valid in so far as they are conformable with fact. The laws together form a closed system. We test the facts by observation and the laws by logic.

For the purposes of this inquiry we are not unprepared, and the peculiar nature of our preparation must be taken carefully into account. We do not start our philosophical inquiries from nothing, but rather from an implicit system of beliefs. This system, however unconscious, is nevertheless framed in language. Language, said Peirce, is a kind of algebra, 36 and it is in terms of our implicit system that we calculate the truth of newly-learned propositions. Criticism is always oriented. The first necessity is to know the point of view the criticism takes off from as well as the statements toward which it is

<sup>36</sup> Collected Papers of Charles Sanders Peirce, 3.419.

directed: criticism from where as well as criticism of what. Criticism always implies a criterion: an ontological standpoint. if you like, as well as a logical method.

The question arises, how do we examine our own systems apart from venturing to apply them? We speak of metamathematics because we do not set up the presuppositions requisite for a logical, mathematical or ontological system and then construct the system, but rather we construct the system and then seek to discover the presuppositions required in order to have done so. This is procedural, but the result of this inductive method ought to be a set of presuppositions sufficient as well as necessary for the construction of the systems.

The logical method, then, starts from a knowledge of logical structures. It cuts back to the discovery of the postulates clothed as presuppositions, then forward to the testing of their consistency, completeness and fruitfulness. Postulates, however, are never applied. Peirce's pragmatic definition of meaning is therefore too wide. It does not apply to every element of a system. Instead of declaring that the meaning of a proposition is its conceivable consequences, <sup>37</sup> he should have said that in a system the meaning of a deduction is its conceivable consequences. For the postulates are only indirectly applicable: the deductions from them alone can be applied.

The pragmatists and the logical positivists have been responsible for a great deal of the confusion between meaning and truth. We must distinguish between what a proposition means and the truth (or falsity) of what it means. It is the truth and not the meaning of a proposition which is determined by its method of verification. On the other hand, before we can determine the truth of a proposition we must first ascertain its meaning. Linguistic analysis can help us to solve the problem of meaning, but this does imply that analysis is merely verbal. Once we know what a proposition means, we are in a position to test its truth. But also before we can test its truth, we must determine the truth-conditions. These are the conditions under which the truth or falsity of a proposition could be decided.

<sup>37</sup> Collected Papers of Charles Sanders Peirce, 5.2, 5.9.

<sup>38</sup> Barnes, op. cit.

Thus there are two prerequisites for the testing of truth: we must have in our possession a knowledge of the meaning and a knowledge of the truth-conditions.

Suppose as an example we take the familiar proposition, "There are craters on the far side of the moon." We have to ascertain with some precision what we mean by every word in this sentence and from the syntax what we mean by the sentence as a whole. Then we shall have to agree about the circumstances under which we shall accept a verdict as to the accuracy of this meaning. If we mean that 'the moon' is a proper name and that 'craters' are the funnel-shaped openings which mark the vents of volcanoes, then we mean that there is a singular object possessing these markings.

What, then, are we prepared to accept as evidence that this is so (or not so)? Only too often the answer to this question is settled ex post facto, for the principles underlying the weighing of evidence are thus far almost exclusively the property of the mathematicians who study statistical probability. Before we are through we shall have to discover that a great technical preparation is required for every problem in philosophy. The day of the enlightened amateur — as every professional (whose equipment consists in a knowledge of the history of philosophy and a strong belief in the judgment of his common sense), must now be considered — is almost over. A dim understanding of the situation merely allows caution to inhibit judgment. We must learn to proceed with more exactitude and not merely with more timidity.

Our attitude toward postulates at the beginning of the systemic investigations must be that which we have toward any proposition for which at present we can conceive no method of verification: we must not be sceptics but agnostics. When working back up through deductions to postulates, we should remember that it is always easier on matters of policy to deal with the president than with the office boy.

If we redefine reasoning as the combining of elements, then the distinction, hitherto so absolute, between deduction and induction, is softened. Deduction becomes the combining of elements by substitution, and induction the combining of elements by deduction, i.e., by the choosing of postulates for deduction. In this way, although postulates are never truth-tested, they are related to the actual world, and their correspondence to fact is not supported merely by the application of the deductions from them. In this way, too, what is persistent among the elements of empiricism gets sucked up into logic, like a ladder drawn up through linguistics. Logic refers to the world, but only in so far as the world possesses logical properties. But it is by means of these logical properties that the world can be grasped.

Some inquiries are like physical machines in that they accomplish much because a certain kind of blindness prevents them from being diverted from their logical course by less relevant side possibilities. The system of ontology is a tautology at the mathematical level based on elements derived from experience, on empirical elements. The world of ontology is a locked logical system, and, as Wittgenstein made clear, not the mind but the system mirrors the world. He forgot to add that the world in this connection also mirrors logic: the world and logic reflect each other systematically; and the reflection is what we mean by ontology.

An ontology is an abstract structure invented to account for the world. In so far as it has internal consistency, it is independent; yet its elements are derived from the world. It is a tautological instrument whose operation requires the repeated substitution of constants for variables. We do not go from ontology to practice but to lesser theory — to ethics or æsthetics, for instance, and from these to practice. There is an implied endorsement in successful application, yet more, much more, is required. Practice often tells us which systems are worthy of further logical scrutiny. The progress of knowledge involves an endless and intensive study of logical and mathematical systems, the ascertainment of fact by means of complex instruments, and their interweaving by means of the scientific method.

JAMES K. FEIBLEMAN

Tulane University.



# BEING, ESSENCE AND EXISTENCE FOR ST. THOMAS AQUINAS (II)

### BEING - THAT WHICH IS

The first part of this discussion 1 was devoted to an analysis of the central intuition which is at the very heart of Thomistic philosophy, namely, the intuition of the basic intelligible reality of being as analogically permeating everything knowable, and especially of existence as the act of every act and the perfection of every perfection. This second and concluding portion is devoted to the study of being not so much as intelligible but rather as existent. Here the notion of that which exercises the act of existing is the primary concern.

According to St. Thomas Aquinas, "that which is said to exist through any nature is called a suppositum or subject (suppositum vel hypostasis) of that nature. For example, that which has the nature of horse is said to be a subject or suppositum (hypostasis vel suppositum) of equine nature." <sup>2</sup>

<sup>&</sup>lt;sup>1</sup> The Review of Metaphysics, III (1950) pp. 339-365.

<sup>&</sup>lt;sup>2</sup> De Rationibus Fidei C. 6, ed. Mandonnet p. 264. Cf. also Sum. Theol. I. 29. 2. Resp. ... "In another sense, substance means a subject or suppositum, which subsists in the genus of substance." Sum. Theol. I. 39. 1. ad 3. ... "individuals are called subjects, supposita, or hypostases. So the divine persons are named supposita or hypostases, but not as if there were any real supposition or subjection here."

On this latter point cf. Sum. Theol. I. 3. articles 6 and 7, where in the case of God St. Thomas denies any receptivity as regards even necessary (per se) accidents.

Also, Sum. Theol. I. 29. 3. ad 3 ... "the name hypostasis does not apply to God as regards its source of origin, since He does not underlie accidents; but it applies to Him in its objective sense, for it is imposed to signify the subsistent thing."

On the other hand, substance (etymologically the same formation as hypostasis) is commonly taken to mean essence. *Ibid.*, ... "inasmuch as the term substance, which corresponds to hypostasis in Greek is commonly taken among us to mean essence."

In the preface of his treatise Against the Errors of the Greeks St. Thomas uses this example to illustrate "the duty of a good translator...

Subjects or supposita, moreover, occupy all the room there is in the Thomistic universe, since existence belongs properly only to individual subjects. These may be simple, as in the case of separate intelligences or composite as in the case of inanimate and animate substances: "existence belongs properly to subsisting things, whether they be simple, as in the case of separate substances, or composite, as in the case of material substances. For the act of existing belongs properly to that which has existence: that is, to that which subsists in its own existence." <sup>3</sup>

We have seen, moreover, that "existence is essentially distinct from that to which it is added and whereby it is determined." <sup>4</sup> In other words, St. Thomas distinguishes "the act of existing from that to which that act is attributed." <sup>5</sup> The subject holds existence as something that is not an essential requirement of its intelligible constitution: "existence . . . follows . . . the subject, as that which holds existence." <sup>6</sup> The act of existing cannot enter as a constituent element into the intelligible constitution of any created subject. <sup>7</sup>

to preserve the meaning while changing the mode of expression in accordance with the propriety of the language into which [the works] are translated."

Our word *subject* which has an etymology similar to that of *hypostasis* is more frequent than either hypostasis or suppositum. It is used here to signify the self-subsistent thing.

<sup>3</sup> Sum. Theol. I. 45. 4. Resp. Cf. also IX Quodl. a. 3, Resp....
"Existence therefore is properly and truly attributed only to a thing that is subsisting in itself." Qu. Disp. De Unione Verbi Incarnati a. 4, Resp.... "For existence is properly and truly predicated of a subsisting subject."

Also In III Sent., d. 6, q. 2, Resp. On The Power of God III. 3. ad 2. Cf. also notes 23, 55, 72, 73, 74 below.

4 Part I, op. cit., p. 362.

<sup>5</sup> On Truth I. 1. ad 3 Contr. Cf. De Substantiis Separatis C. 7, ed. Perrier n. 49... "a certain common resolution must take place in the case of all such participated beings. In such a reduction, each of these beings is analyzed (resolvitur) into that which is and its act of existing." Also III Quodl. a. 20, Resp.

6 Sum. Theol. III. 17. 2. ad 1.

<sup>7</sup> Cf. II Quodl. a. 4, ad 2 ... "although the act of existing does not belong to the constitutive intelligibility of the suppositum..." II Quodl.

We have seen, also, that as the act of every act and the perfection of every perfection existence cannot "have anything added to it that is more formal and determines it as act determines potentiality." 8 According to the universal principle it is potency which limits act: "for no act is found to be limited except through a potency that is receptive of that act." 9 Potency implies both capacity to receive and limitation of the perfection received. Act is limited through potency which is capacity for perfection: "every act inhering in something else receives its limitation from that in which it is: since that which is in another is in it according to the mode of the recipient. For this reason an act that exists in no subject is limited by nothing."10 Hence existence as existence has no limit and no principle of limitation within itself: "existence itself, considered absolutely, is infinite; for it can be participated by an infinite number of subjects and in an infinite number of ways." 11 The ultimate

a. 3, Resp. ... "no created subject is its existence, but is a possessor of existence (habens esse) ... in any created thing that created subject which holds existence is distinct from its very act of existing... wherefore it is participated as something not existing as an essential requirement of the essence of the thing (non existens de essentia rei)." The Soul a. 1, ad 8 ... "it does not belong to the constitutive intelligibility of that which is a particular thing (hoc aliquid) to be composed of matter and form, but only to be capable of subsisting in itself."

On the last point cf. Sum. Theol. III. 77. 1. ad 2 ... "the definition of substance is not: a being in itself (ens per se) without a subject... but it belongs to the quiddity or essence of a substance to have existence not in a subject." Also Sum. Theol. I. 3. 5. ad 1. In IV Sent., d. 12, q. 1, a. 1, Sol. 1, ad 2 and ad 3. IX Quodl. a. 5, ad 2. Cont. Gent. 1. 25, last paragraph. On the Power of God VII. 3. ad 4.

<sup>&</sup>lt;sup>8</sup> Part I, op. cit., p. 362. Cf. also Cont. Gent. I. 38 ..."that which is can participate something, but existence itself can participate nothing: because that which participates is potency, whereas existence is act."

<sup>9</sup> Comp. Theol. C. 18.

<sup>10</sup> Cont. Gent. I. 43. Cf. also Ibid., "... every act which exists in union with a potency has a limit to its perfection: while an act that has no admixture of potentiality has no limit to its perfection."

<sup>11</sup> Cont. Gent. I. 43. Cf. also Sum. Theol. III. 16. 9 ad 2... "to be simply is higher than to be man." In V Metaph., 9, n. 896... "being (ens) is higher than any one being (unumquodque entium)." Sum Theol. I a II ae. 2. 5. ad 2... "existence taken simply, as including all perfection of

rational ground for the existence of every limitation is the fact that being is composed of act and potency. Existence is limited only by the limitation of its co-principle: "unless existence is in a subject, therefore, there is no way in which that which is outside the order of existence can be united to it. Existence as existence cannot be divers, moreover, but it can be differentiated through something that is outside the order of existence: thus the act of existing of a stone is other than the act of existing of a man." <sup>12</sup> Since, moreover, as we have seen, "in every being there is a proportion between that which is and the act by which it exists," <sup>13</sup> not only are the act of existing of a stone and the act of existing of a man not the same "but neither is the existence of this man and of that man the same." <sup>14</sup>

being (essendi), is higher than life and all subsequent perfections." Also Sum. Theol. I. 4. 2. ad 3. In Lib. Dionysii De Divin. Nom. C. 5, lect. 3. ed. Pera n. 669. In I Sent., d. 17, q. 1, a. 2, ad 3.

<sup>12</sup> Cont. Gent. II. 52.

<sup>13</sup> Part I, op. cit., p. 358.

<sup>14</sup> Sum. Theol. I. 3. 5. Resp. Cf. also In I Sent., d. 35. q. 1, a. 4, Resp. ... "the nature (habitus) of humanity is not in two men according to the same act of existing; and thus whenever the form signified by the name is existence itself, it cannot be attributed univocally, since being (ens) also is not univocally predicated."

Cf. Jacques Maritain, Existence and the Existent, New York: Pantheon, 1948, pp. 36-37: "The act of existing... could not be called act... or form or perfection if these words were univocal." In I Sent., d. 25, q. l, a. 4, Resp. ... "since the form from which the name being is derived, namely the act of existing, is not multiplied in Them [the Three Persons]." On The Power of God II. 1. Resp.... "God's act of existing is His nature and quiddity; so that the name proper to Him is: He Who is (Exod. iii, 14), because thereby He is named as if from His proper form." Sum. Theol. I. 3. 7 ... "since God is absolute form (ipsa forma) or rather absolute existence (ipsum esse)." Ibid., I. 13. 11. Resp. ... "it [He who is] does not signify some form, but the act of existing. Hence, since the existence of God is His very essence ... it is clear that among other names this one most properly names God; for everything is named according to its form." II Quodl. a. 6, obj. 4. "But you will say that the difference of an angel is not derived from the form but from that which is formal, that is, from the act of existing of the angel." Ibid., Resp. ... "the act of existing is not an act which is part of the essence as form is."

The existent subject limits existence to itself and to its own finitude: "participated existence is limited by the capacity of the participator." 15

That is to say, the participator's "act of existing is received by and contracted to a terminated nature." <sup>16</sup> In fine, participated existence "must be individuated through the nature and substance that subsists in such existence. And of such subjects it is true that the act of existing of one is other than the act of existing of the other through its being the existence of another nature . . . just as heats that are existing in a subject are not distinguished except through their subjects." <sup>17</sup>

Cf. also Etienne Gilson, The Spirit of Mediaeval Philosophy, New York: Scribner's, 1940, p. 58, where he explains the following quotation from Comp. Theol. C. 20 ... "since God is infinite because He is exclusively form or act." In C. 15 St. Thomas indicates the analogy by using quasi: ... "The divine existence is as it were (quasi) a form subsisting by itself."

<sup>15</sup> Sum. Theol. I. 75. 5. ad 4.

<sup>16</sup> Sum. Theol. I. 7. 2. Resp. Cf. also On Spiritual Creatures a. 1, Resp.... "every thing which exists after the first being, since it is not its own act of existing, has an existence that is received in something, through which the existence itself is contracted." In I Sent., d. 8, q. 2, a. 1, Resp.... "any act of existing can be said to be terminated... in virtue of (ratione) the subject in which it is received: for existence is received into something according to the latter's mode just as any other form which of itself (de se) is common, and according as it is received in something it is terminated according to that thing, and the divine existence alone is not terminated in this way."

<sup>17</sup> On The Power of God VII. 2. ad 5. Cf. also On Truth II. 11. Resp. .... "if in Peter man and to be man (hominem esse) did not differ, man could not possibly be predicated univocally of Peter and Paul, in whom there is divers existence." On the Power of God II. 1. Resp. ... "because a material form or nature is not its own act of existing, it receives existence through the fact of its being received into something else: wherefore according as it is received into a diversity of subjects it necessarily has divers existence: whence humanity is not one in Socrates and Plato according to existence, although it is one according to essence of the species (propriam rationem)." Also Comp. Theol. C. 14. Cf. Jacques Maritain, An Introduction to Philosophy, London: Sheed and Ward, 1947, pp. 142-163, especially p. 160: "We must therefore conclude that there is nothing more in the individual nature than in the essence from the standpoint of primarily intelligible or archetypal being," and note 1: "The individual nature contains more (the qualities peculiar to the individual, for example,

If, however, we consider an individual nature, that is, the essence individuated by matter, by itself and exclusively from the point of view of its essential components there is nothing to prevent its being joined to another substantial nature in the act of existence: "thus there is nothing to prohibit some nature from being attributed to a subject of another nature." <sup>18</sup> Metaphysically speaking there is nothing repugnant in our saying that "there can be a numerical multitude on the part of nature because of the division of matter, without distinction of subjects." <sup>19</sup> For St. Thomas points out that "matter divided in just any way whatsoever does not constitute diversity of subjects, but only when each has discrete existence and is subsisting by itself." <sup>20</sup>

Any nature, therefore, considered with respect to its quidditative components only does not have in itself anything by which it is constituted as a subject: "no composite nature is . . .

Concerning matter cf. note 64 below.

Also Maritain, op. cit., p. 161 note 2.

a particular temperament) than the essence, but only from the standpoint of matter, not from the standpoint of purely intelligible or immaterialized being."

<sup>18</sup> Qu. Disp. De Unione Verbi Incarnati a. 1, ad 11. Note Ibid., a. 2, ad 14 ... "the aggregate of proper accidents sufficiently attests the individuation of the human nature of Christ." Also Ibid., ad 9... "the human nature assumed by the Word of God, insofar as it is individual, cannot be in several." Regarding individual nature cf., for example, Sum. Theol. I. 119. 1. Resp. . . . "that belongs to the true nature of any thing which enters into the constitution of that nature. But nature can be considered in two ways: first, in general according to the essence of the species: secondly, as in this individual. Now form and common matter belong to a thing's true nature considered in general, while designated individual matter and the form individuated by that matter belong to the true nature as found in this particular individual. Thus human soul and body belong to true human nature in general, but to the true human nature of Peter and Martin belong this soul and this body. Ibid., Ia IIae. 63. 1. Resp. . . . "there are two ways in which something is said to be natural to a man: one is according to the nature of the species, the other according to the nature of the individual."

<sup>19</sup> Sum. Theol. III. 3. 7. ad 1. Cf. also Ibid., ad 2.

<sup>20</sup> In III Sent., d. 1, q. 2, a. 5, ad 1.

of itself a subject." <sup>21</sup> But such a nature would not be existing by itself unless it were so completed, i.e., unless it were constituted in its subjectivity: "no nature has existence except in its subject." <sup>22</sup> One cannot suppose, therefore, that natures come to be as natures, then await completion as subjects: "nature, properly speaking, does not begin to exist: rather it is the subject that begins to exist in some nature." <sup>23</sup>

Insofar as it is constituted as a subject the created substantial nature limits its act of existing to itself and to its own

<sup>21</sup> In III Sent., d. 6, q. 1, a. 1, Sol. I, Resp.

<sup>&</sup>lt;sup>22</sup> In III Sent., d. 2, q. 2, a. 3, Sol. I, Resp. Cf. also Qu. Disp. De Unione Verbi Incarnati a. 2, ad 9 . . . "from the fact itself that it is a nature it belongs to it to be in some subject." In I Sent., d. 2, q. 1, a. 4, ad 1 . . . "essence does not have existence except through its relation to that which has essence." Cf. Etienne Gilson, Being and Some Philosophers. Toronto: Pontifical Institute of Mediæval Studies, 1949, p. 202: . . "essence always is the essence of some being."

<sup>23</sup> Sum. Theol. III. 35. 1. ad 3. Cf. also Ibid., Resp... "existence belongs properly to a subsisting thing; since a form that does not subsist is said to be only inasmuch as by it something is. Now person or subject designates something as subsisting whereas nature is signified after the manner of a form in which something subsists. Consequently, nativity is attributed to the person or hypostasis as to the proper subject of being born, but not to the nature."

On the meaning of form in this connection cf. On Being and Essence C. 2 . . . "humanity is designated as a certain form, called the form of the whole. It is not something added to the essential parts, namely, form and matter . . . rather it is the form which is the whole, embracing both form and matter, excluding however, those things which enable matter to be designated." Also Ibid., C 1 "It [quiddity] is also called form." Cont. Gent. IV. 81 . . . "as to humanity, we must not think that this is a certain form resulting from the union of the form with the matter, and distinct from both." Also In VII Metaph., 9, n. 1467-1469. II Quodl. a. 4, Resp. IX Quodl. a. 2, ad 1 and ad 3. II Quodl. a. 1, Sed Contr. Sum. Theol. I. 73. 1. Resp. Maritain, op. cit., p. 159, n. 4.

Other texts on the main point: Cont. Gent. IV. 48. In III Sent., d. 8, a. 2.

Note also, On The Power of God III. 5. ad 2 . . . "from the very fact that existence is ascribed to the quiddity, not only the existence but the quiddity itself is said to be created: since before it has existence, it is nothing." Sum. Theol. I a II ae. 109. 2. ad 2 . . . "every created thing has existence only from another and considered in itself is nothing."

finitude: "a subject does not extend beyond the limits of that nature from which it has its subsistence." 24 For by the very fact that it is finite it excludes other finite substantial natures from the existence that actualizes it: "it does not happen in created things that the same numerically can subsist in diverse essences or natures."25 As a corollary it follows that every "subsistent thing must have but one nature through which it has existence simply." 26 For it is in and by means of its essence that a thing receives existence: "essence means that through which and in which a thing has its act of existence." 27 Moreover, St. Thomas teaches that one thing does not naturally desire to become something else as, for instance, a donkey does not naturally desire to become a horse: for this would involve a desire to destroy what it is, that is to say, a donkey. Such "would be against the natural desire. For there exists in everything a natural desire to preserve its own act of existing, which would not be preserved were it to be changed into another nature. Consequently, no thing in a lower grade of nature can seek the grade of a higher nature, just as a donkey does not desire to be a horse; for if it were upraised to the grade of a higher nature, it would no longer be itself." 28

<sup>24</sup> Cont. Gent. IV. 49.

<sup>25</sup> Sum. Theol. III. 2. ad 1.

Note however, Sum. Theol. III. 3. 1. ad 2 . . . "this is proper to a divine person, on account of His infinity, that there should be a concourse of natures in it, not accidentally, but according to subsistence." Here we are speaking of the property or privilege of the infinite Personas infinite.

<sup>26</sup> Cont. Gent. IV. 49. Cf. note 77 below.

<sup>&</sup>lt;sup>27</sup> On Being and Essence C. 1. Cf. also Sum. Theol. I. 39. 2. ad 3... "essence comes from existing (essendo)." In V Metaph., 9, n. 896... "the act of existing that a thing has in its own nature (in sui natura) is its substantial existence."

<sup>&</sup>lt;sup>28</sup> Sum. Theol. I. 63. 3. Resp. Cf. also Cont. Gent. IV. 43 . . . "an individual of human nature is a subject and a person . . . if that subject or person did not remain in that nature wherein it preexisted before being assumed . . . this could not have happened without corruption: for no singular thing can cease to be that which it is (hoc quod est) without corruption." Sum. Theol. Ia Ilae. 85. 6. Resp. . . . "a thing's particular

All existents, moreover, have a common characteristic, namely, that in order to exist they must be undivided and distinct from every other existent. They must possess that concrete state of unity and indivision in virtue of which every existing nature can be posited in existence as distinct from other beings. St. Thomas has several ways of expressing this in axiomatic form, for example: "everything is made a being according as it is made one; undivided in itself and distinct from others" <sup>29</sup> or "a thing has both being and unity from the same source." <sup>29a</sup> Or again, "according as each individual thing has existence it has unity and individuation." <sup>30</sup> Moreover, the combination of two beings in act can never produce a thing which is substantially one, that is to say, one in virtue of the substantial nature by which it subsists.<sup>31</sup> Thus "that

nature is its own power of action and self-preservation." Also Cont. Gent. III. 109. Qu. Disp. De Malo XVI. 3. Resp.

<sup>29</sup> Cont. Gent. II. 40.

<sup>&</sup>lt;sup>29a</sup> Sum. Theol. I. 76. 3. Resp. Cf. also Sum. Theol. I. 76. 1. Resp. . . . "a thing is a being according as it is one." I Quodl. a. 6, Resp. . . . "for a thing has both existence and unity from the same source." Cont. Gent. II. 58 . . . "a thing has unity and existence from the same source." Cont. Gent. I. 42 . . . "a thing has being according as it has unity. Wherefore every thing shuns division so far as it can, lest it thus tend to non-existence." Sum. Theol. I. 115. 6. Res. . . . "because it is not truly a being (very ens), since it is not truly one (vere unum)."

<sup>&</sup>lt;sup>30</sup> Responsio ad Fr. Joannem Vercellensem CVIII. Cf. also The Soul a. 1, ad 2 . . . "each individual thing has existence and individuation according to the same." Comp. Theol. C. 71, ed. Mandonnet p. 39 . . . "according as things have existence, so do they have plurality and unity, for according as everything is being so also is it one." On Spiritual Creatures a. 3, Resp. . . . "every thing is one according as it is a being."

<sup>&</sup>lt;sup>31</sup> Cf. On Spiritual Creatures a. 3, Resp. "...a thing that is one simply does not come into being from two acts." In VII Metaph., 13, n. 1588... "two which are in act are never one in act... Wherefore it is obvious that if a particular substance is one, it will not be from substances actually existing in it." Ibid., 1. 16, n. 1647... "no substance is constituted from substances actually existing." Cont. Gent. II. 56. obj. 1 "For from two actually existing substances there cannot be made something one." Cont. Gent. I. 42... "for two things have not one act of existing if they differ substantially." De Substantiis Separatis C. 8, ed. Perrier n. 59... "according to the proper nature of its species (secundum pro-

existence which belongs to the very subject or person of itself cannot be multiplied in one subject or person since it is impossible that of one thing there should not be but one act of existing." <sup>32</sup> So too, existence must be possessed in an incommunicable manner: "the act of existing which is proper to one thing cannot be communicated to another." <sup>33</sup>

Outside the mind, therefore, only singular realities exist. They alone are capable of exercising the act of existing. Their concrete state is opposed to that state of universality which things have in the mind: "universals are not subsistent things but have existence only in singulars." <sup>34</sup> Since only individuals, i.e., completely circumscribed and self-contained units, can really exist, in the universe of material beings "individuating principles have two functions. The one is that they are principles of subsistence, since the common nature taken in itself

priam naturam speciei) six is not twice three but simply six. Otherwise there would have to be several substances of one thing." Concerning this last text cf. also In V Metaph., 16, n. 992 (Aristotle, Metaph., V, 14, 1020b 8-9). In IV Sent., d. 8, q. 2, a. 3, ad 7.

32 Sum. Theol. III. 17. 2. Resp. Cf. also Sum. Theol. III. 19. 1. ad 4 . . . "existence belongs to the very constitution of the person and in this respect it is to be understood as a term; consequently unity of person requires unity of the complete and proper existence." IX Quodl. a 3, ad 2 . . . "The act of existing is that on which the unity of the subject is founded: wherefore plurality of existence precludes unity of the existent (esse multiplex praejudicat unitati essendi)". In III Sent., d. 18, a. 1, ad 3 . . . "the unity of a thing is consequent upon its act of existing . . . And for this reason it cannot happen that the subject is one if its act of existing is not one." Comp. Theol. C. 212 . . . "of one subject there is one act of existing." Sum. Theol. I. 76. 4. Sed Contr. "Of one thing there is but one substantial act of existing." Cont. Gent. I. 42 ... "the existence proper to each thing is one only." Comp. Theol. C. 92 . . . "the substantial act of existing of each thing is indivisibly related to it." In II Sent., d. 1, q. 2, a. 4, ad 2 . . . "of one thing there can be but one essential act of existing (unum esse essentiale)."

33 On Truth II. 11. Resp. Cf. also On The Power of God VII. 3. Resp. . . . "the act of existing of anything is proper to it and distinct from the act of existing of every other thing." Cont. Gent. I. 14 . . . "each thing has in itself its own existence distinct from all other things." In I Sent., d. 35, q. 1, a. 4, Resp. . . . "one act of existing is only in one thing."

<sup>34</sup> Cont. Gent. I. 65. Cf. also In II De Anima 12, n. 378.

(de se) does not subsist except in singulars: and the other is that through the individuating principles the subjects of the common nature are distinguished from one another." 35 This latter distinction is through matter which is part of the essence. It constitutes a distinction within the order of nature or species, for the principles of every species must be multiplied in the several individuals of the same species: "it is impossible for that whereby individuals obtain their species to be numerically one in the individuals of the same species. For if two horses should agree in the same numerically whereby they obtained their species horse, it would follow that two horses would be one horse, which is impossible . . . thus if the intelligible constitution of man is that he be composed of soul and body, it belongs to the intelligible constitution of this man that he be composed of this soul and this body." 36 Thus man does not

<sup>&</sup>lt;sup>35</sup> On The Power of God IX. 5. ad 13. Cf. also In I Sent., d. 23, q. 1, a. 4, Resp. . . . "the division of nature in several persons in men arises not only from the imperfection of human nature which is not its own existence, but receives existence in its subject: wherefore human nature is in divers subjects according to divers acts of existing; but also from the mode of distinction, because human persons are distinguished through matter which is part of the essence."

<sup>36</sup> On Spiritual Creatures a. 9, Resp. Cf. also Cont. Gent. I. 65 . . . "the essence of a singular (singularis essentia) is constituted of designated matter and individuated form: thus the essence of Socrates is made up of this body and this soul, even as the essence of man in general is made up of soul and body . . . wherefore since the latter are included in the definition of man in general, so would the former be included in the definition of Socrates if he could be defined." On The Power of God IX. 2. ad 1 . . . "in a particular substance, three elements must be considered: first, the nature of the genus and species existing in the individual: second, the mode of existence of such a nature, inasmuch as the nature of the genus and species in the individual substance exists as proper to that individual and not as common to many; and, third, the principle whence arises such a mode of existence . . . the term that includes in its signification the determinate principle of individuation, is not common nor definable, e. g., Socrates, and Plato." Cont. Gent. I. 21 ... "the essences or quiddities of genera or species are individuated by the designated matter of this or that individual." Sum. Theol. I. 30. 4. Resp. . . . "the name of a designated singular thing signifies that which distinguishes the determinate thing; as the name Socrates signifies this flesh and this bone."

exist apart from this or that man. For "whatever subsistent thing is composed of matter and form is composed of individual form and matter." 37

Separate substances, on the other hand, are subsistent quiddities, that is, subsistent species. Each differs from any other species as the species horse differs from the species man. Each separate substance differs specifically from every other; each is an individual by the form in which its being consists and which constitutes it in its species. For each form is absolutely free from any matter.<sup>38</sup> In material beings the situation

Note, however, On The Power of God IX. 2. ad 6 . . . "when substance is divided into first and second, it is not the division of a genus into species, since nothing is contained under second substance which is not in first substance: but it is a division of a genus according to different modes of existing. Thus second substance signifies the nature of the genus in itself absolutely, while first substance signifies that nature as individually subsistent: wherefore the division is that of an analogue rather than that of a genus. Accordingly person is contained in the genus of substance, although not as a species, but as determining a special mode of existing." Also Ibid., ad 1. Sum. Theol. 1. 29. 2. ad 2 and ad 3. Sum Theol. III. 2.6. ad 3. In VII Metaph., 2, n. 1274-1275. In X Metaph., 3, n. 1979. Maritain, op. cit., p. 159-161.

<sup>37</sup> Cont. Gent. II. 50. Cf. The Soul a. 17, ad 10 . . . "humanity is comprised only of the principles of the species; but this man adds individuating principles over and above the principles of the species, inasmuch as the nature of the species is received and individuated in this matter." Cont. Gent. IV. 11 . . . "with us because two having human nature are two men, it happens that human nature is divided numerically in two subjects." Also Sum. Theol. I. 3. 3. Resp. On the Power of God IX. 2. Resp. and ad 6. In III Sent., d. 5, q. 1, a. 3. Resp. II Quodl. a. 4, Resp. and ad 1. Sum. Theol. I. 29. 2. ad 3. Sum. Theol. III. 2. 2. Resp.

38 Cf. Cont. Gent. II. 93 . . . "separate substances are subsistent quiddities . . . Wherefore subsistent quiddities are subsistent species." Cont. Gent. II. 91 . . . "there are some forms that are complete acts, subsistent in themselves, and having a complete species. But every form that subsists in itself without matter is an intellectual substance." Cont. Gent. III. 97 . . . "some of them [forms] are perfect to the extent of being subsistent and complete in themselves, having no need of the assistance of matter." Also Sum. Theol. I. 50. 4. Resp.

For a comprehensive study of separate substance, cf. James Collins, The Thomistic Philosophy of The Angels, Washington: The Catholic University of America Press, 1947. is quite different. Here individuality is rooted in matter inasmuch as matter requires the occupation in space of a position distinct from every other position. By the fact that they are ordained to inform matter such forms are particularized in this or that subject. "For it belongs to the very constitutive intelligibility of an individual that it cannot be in several. This happens in two ways. First, because it does not belong to its nature to be in something; and in this way immaterial separate forms, subsisting of themselves, are also individuals of themselves. The other way, because a form, whether substantial or accidental, is naturally in some one thing, not in several, such as this whiteness which is in this body. In the case of substantial forms, matter is the principle of individuation of all inherent forms since forms of this kind considered as such are naturally in something as in a subject. From the very fact that one of them is received in matter, which is not in another, it follows that neither can the form itself thus existing be in another." 39

Matter of itself is a mere potency to receive form. In every being made up of matter this pure potency receives a form which constitutes with it a substantial unit. Hence in composite substances the term essence signifies what is composed of matter and form.<sup>40</sup> The essence thus constituted is

<sup>&</sup>lt;sup>39</sup> Sum. Theol. III. 77. 2. Cf. also The Unicity of The Intellect C. 5, ed. Keeler n. 102-103... "matter is not the principle of individuation in material things except insofar as it cannot be participated by several... Separate substances are therefore individual and singular. However, their individuation is not from matter but from the very fact that it is not natural to them to be in something and, as a result, neither is it natural to them to be participated by several." Also On Spiritual Creatures a. 5, ad 8. Ibid., a. 8, ad 4. Ibid., a. 8, ad 13.

Note, I Quodl. a. 6, ad 4 . . . "the soul, since it is a form, is indeed a certain particular perfection, and not a universal one." In II Sent., d. 3, q. 1, ad 3 . . . "prime matter receives form not insofar as it is form simply but insofar as it is this form, wherefore it is individuated through matter."

<sup>&</sup>lt;sup>40</sup> On Being and Essence C. 2 . . . "the word essence in composite substances signifies the composite of matter and form." The Soul a. 10. Resp. . . . "form and matter are intrinsic principles constituting the essence of the thing." Also In V Metaph., 10, n. 902.

itself a possibility of existing. But in itself matter does not constitute such a possibility. Even in relation to the essence of which it is a quidditative component it is merely a potency. Thus "in substances composed of matter and form there is a twofold composition of act and potency: the first, the composition of the very substance which is composed of matter and form. The second composition is that of the substance already constituted and the act of existing." 41

In the case of the union of matter and form a third thing is constituted, namely the essence or substance. But no third thing results from the composition of the substance and its existence. Thomists generally follow Cajetan's formulation, which is as follows: "in the second composition no third thing, having either essential or accidental unity results . . . the first composition is a composition from these (ex his) resulting in a third thing. The second composition is a composition with these (cum his). There is no thing which consists of essence and existence, properly speaking, in the way that a thing consists of matter and form. Rather essence composes with existence and existence composes with essence, and they are, therefore, said to be immediately (per se) conjoined but they are not said to compose a third thing." <sup>42</sup>

<sup>41</sup> Cont. Gent. II. 54. Cf. also Sum. Theol. I. 50. 2. ad 3 . . . "from the consideration of material things, in which there is a twofold composition. The first, is that of form and matter, from which the nature is constituted. Such a composite nature is not its own act of existing, but existence is its act. Hence the nature itself is related to its act of existing as potency to act." On Spiritual Creatures a. 1, Resp. . . . "in composite things there is a twofold act and a twofold potency to consider. For in the first place matter is as potency with reference to form, and the form is its act. Secondly, the nature constituted of matter and form is as potency with reference to existence itself inasmuch as it is able to receive it."

<sup>&</sup>lt;sup>42</sup> In De Ente et Essentia C. 5, ed. Laurent, pp. 143-144. For St. Thomas cf. On Being and Essence C. 2 . . . "we say that man is made up of soul and body as two things constitute a third thing which is neither one of them, for man is neither soul nor body." II Quodl. a. 3, Resp. . . . "in the case of every creature, the creature which has existence is other than its act of existing . . . in an angel there is the composition of essence and existence, but this is not to be considered as a composition of parts of the

The act of existing, then, does not belong to the form alone nor to the matter alone but to the composite.43 The "complete substance is the proper recipient of the act of existing" 44 and it is "by the form that the substance is made the proper recipient of existence."44 Existence thus reaches a composite substance through its form. 45 It is through the form actuating prime matter that existence comes to the whole composite. Form is that by which the prime matter which it informs is maintained in existence. "In substances composed of matter and form we observe these three: matter, form, and the act of existing itself. The principle of existence is the form; for matter receives an act of existing because it receives a form. In this way, then, existence follows the very form. The form is not its own existence, however, since it is the principle of existence."46 The form is the principle of existence inasmuch as it is the complement of the existing substance. But the act of existing is not one of the quidditative constituents

substance, but as a composition of the substance and that which adheres to the substance." *Ibid.*, ad 1 . . . "sometimes a third thing results from those that are joined together, for instance from soul and body *humanity*, which is man, is constituted, wherefore man is composed of soul and body. But sometimes a third thing does not result but rather a composite intelligible constitution (ratio composita) results. For example, the constitutive intelligibility (ratio) of white man is resolved into the constitutive intelligibility (ratio) of man and that of white; and in such as these something is composed of itself and another just as white being (album) is composed of that which is white (quod est album) and whiteness (albedine)." Ibid., ad 2 . . . "the act of existence . . . is as it were (quasi) the actuality of every substance." Also On Truth XVI. 1. ad 16.

<sup>43</sup> Cf. On Being and Essence C. 2... "The act of existing of a composite substance belongs neither to the form alone nor to the matter alone, but to the composite itself."

<sup>44</sup> Cont. Gent. II. 55.

<sup>&</sup>lt;sup>45</sup> Cf. De Substantiis Separatis C. 6, ed. Perrier n. 45 . . . "in substances composed of matter and form there is a twofold order; first the order of matter to form, second, the order of the already composed thing to participated existence. For the existence of the thing is neither form nor matter but something that comes to the thing through the form."

<sup>46</sup> The Soul a. 6, Resp.

of substance. It is not there as a requirement of the intelligible constitution. As an essential principle form itself forms part of the order of essence which is wholly other than the order of existence. "Existence is compared as act even to the very form. For in things composed of matter and form, the form is said to be the principle of existence for the reason that it is the complement of the substance, whose act it is to exist." 47

Matter is said to be a "potency to substantial existence according to its very substance." 48 It is said to be "apt by nature to seek and desire form." 48 But "for matter to seek form is nothing else than to be ordered to form as potency to act." 48 There are two conditions, therefore, which must be present if a form is to be the substantial form of the composite. "One of these is that the form be the principle of existing substantially to the thing of which it is the form: and we mean not the efficient but rather the formal principle by which something is called a being. Hence follows the second condition, namely that form and matter combine in one act of existing, which is not the case with the efficient principle together with that to which it gives existence. This is the act of existing in which the composite substance subsists, and the composite substance is one according to its act of existing, and consists of matter and form." 49 This being so, "between substantial form and matter there cannot occur any inter-

<sup>47</sup> Cont. Gent. II. 54.

<sup>&</sup>lt;sup>48</sup> In I Phys. 15, ed. Leon. n. 3, 8, 10. Cf. Maritain, Theonas, New York: Sheed and Ward, 1933, p. 111.

<sup>&</sup>lt;sup>49</sup> Cont. Gent. II. 68. Cf. also On Being and Essence C. 2 . . . "through form, which is the act of the matter, matter is rendered being in act and a substance (hoc aliquid). What is added to it later, then, does not make matter to be actual without any qualification (simpliciter)." Cont. Gent. IV. 81 . . "there are not, in one and the same thing, divers substantial forms." On Spiritual Creatures a. 3, Resp. . . . "if there were a manifold of many substantial forms in one individual of substantial nature, the individual of substantial nature would not be one simply."

Also In II De Anima 1, n. 224. On The Power of God III. 9. ad 9. Qu. Disp. De Virt. Card. a. 3, Resp. Qu. Disp. De Virt. in Comm. a. 11, Resp. Sum. Theol. I. 76. 4. ad 4. I Quodl. a. 6, ad 3.

mediate substantial form," <sup>50</sup> for substantial form constitutes along with matter a substantial unit and determines this unit to be that which it is. <sup>51</sup>

Form receives existence immediately (per se) and not through another form. Existence immediately (per se) follows the form of a creature, given the influence of the efficient cause. In other words, the form is the formal cause of the subject's existence provided that that existence is given by an efficient cause.<sup>52</sup> If, however, the nature is not given existence as its

50 The Soul a. 9. Resp. Cf. also On Spiritual Creatures a. 3, Resp. . . . "just as we cannot say that there is any other medium by which matter has existence through its own form, so it cannot be said that there is any other medium uniting form to matter or to a subject."

51 Cf. The Soul a. 9, Resp. . . . "it is proper to a substantial form to give matter its act of existing simply; for the form is that through which a thing is that which it is (hoc ipsum quod est)." Sum. Theol. III. 7. ad 1 . . . "a created nature is perfected in its intelligible constitution through its form, which is multiplied according to the division of matter." On Being and Essence C. 6 . . . "From the union of the two [substantial form and matter], then, there results the act of existing in which a thing subsists in virtue of itself (per se); from them is produced something substantially (per se) one. An essence, therefore, results from their union."

52 Cf. On Spiritual Creatures a. 1, ad 5 ... "those things which are composed of matter and form are not immediately both being and one, but matter is being in potency and becomes actual being through the coming of the form, which serves as the cause of existence in its regard. But a form does not have existence through another form. And hence, if there be a subsisting form, it is immediately both being and one, nor does it have a formal cause of its own existence; it does however have a cause that pours existence into it." Sum. Theol. I. 104. 1. ad 1 "Existence immediately results from the form of a creature, given the creative influx." In II Sent., d. 17, q. 1, a. 2, ad 5 . . . "that by which the soul exists and lives in the order of efficient causality is God Himself Whose influx is responsible for the existence and life of all beings: in composite things through the form as intermediary and form is part of their essence, in simple substances through their whole essence." I Quodl. a. 6, ad 2 . . . "when the soul joins with the body, it does not make the body to be in the order of efficient causality, but only in the order of formal causality." On the Power of God V. 1. ad 18 . . . "just as the form cannot be a principle of existence, unless we presuppose some previous principle." Op. cit., VI. 6. ad 4 ... "a form is a principle of existence, as that whereby something is, although the existence both of form and of matter own the relationship would not be the same. If there is simply a composite nature that is not a subsistent being by itself, such a composite would not be said to acquire its own act of existing through its form. Existence is said to be given to matter by form operating in the order of formal causality and, as it were, the channel of the subject's existence that is given by the efficient cause.<sup>53</sup>

If, then, the efficient cause were to withdraw its causal action in the case of an already subsisting being, not only would the act of existing cease to be but the very form would be annihilated.<sup>54</sup>

Since existence belongs properly to subsisting things alone, material forms begin to be actual only when the composites

in the composite proceeds from one agent. Hence if there be a created substance that is a pure form, it can have an efficient but not a formal principle." Sum. Theol. I. 61. 1. ad 2 ... "substances that are subsisting forms have no formal cause of their existence and unity . . . but they do have a cause producing their whole substance." Op. cit., I. 75. 5. ad 3 ... "the form is the cause of existence to the matter and so is the agent; wherefore the agent is the cause of existence to matter inasmuch as it reduces it from potency to act by transmuting it to the form. But if something is a subsistent form it does not have existence through some formal principle." The Soul a. 14, ad 4 . . . "the act of existing is related to a form as something immediately (per se) consequent upon the form, but not as an effect to the power of the agent."

<sup>53</sup> Cf. In III Sent., d. 6, q. 2, a. 2, ad 1. . . . "form makes something to be (forma facit esse); not in the sense that the act of existing belongs to the matter or to the form, but to the subsistent being. When, therefore, the composite of matter and form is subsisting of itself the composite acquires from the form absolute and subsistent existence. But when the composite is not of itself subsistent, it does not acquire an act of existing through the form . . . the soul in Christ does not acquire its own act of existing as proper to a human nature." Also Sum. Theol. III. 17. 2. ad 4.

54 Cf. On the Power of God V. 1. ad 10 . . . "the form also would cease to exist if the aforesaid action were to cease, so that it could no longer be a principle of existence." In II Sent., d. 19, q. 1, a. 1, ad 2 . . . "if a form does not have absolute existence in which it subsists, but exists through the act of existing of the composite, then from the fact that the composite ceases to exist it follows that the form itself loses existence and is indirectly (per accidens) corrupted." Cf. also Sum. Theol. I. 104. 1.

are made.<sup>55</sup> But it is by the form that the substance is made the proper recipient of its act of existing. For every thing that exists is determined: a thing cannot be both indeterminate and existent. And form is that through which the subject is determinately constituted for existing and receives existential actuation from the efficient cause. "Existence is an immediate (per se) effect of form, for per se means according to itself (secundum quod ipsum); and a thing has existence according as it has form." <sup>56</sup> Form, just as essence, implies relationship

<sup>55</sup> Cf. Sum. Theol. I. 45. 8. Resp. and ad 1 . . . "the form of a natural body is not itself subsisting, but it is that by which something is. And, therefore, since to be made and to be created belong properly to a subsisting thing alone, as was shown above, it does not belong to forms to be made or to be created, but to be concreated. What, properly speaking, is made by the natural agent is the composite, which is made from matter . . . forms begin to be actual when the composites are made, not as though they are themselves made directly (per se) but only indirectly (per accidens)." Sum. Theol. I. 65. 4. Resp. . . . "forms themselves do not have existence, but composites have existence through them; for according to a thing's mode of existing is the mode in which it is brought into being." Cont. Gent. II. 43 . . . "existence does not belong to form alone nor to matter alone, but to the composite . . . Hence it follows that the composite, properly speaking, is. Therefore it belongs to it alone to be made ... Again ... for since material forms are not subsistent of themselves, but their existence is to be in matter, they cannot be brought into being except ... through the creation of the whole composite . . . " Cont. Gent. III. 69 . . . "since a thing is made that it may be, just as a form is called a being, not as though itself had existence, but because by it the composite is, so neither is the form made, properly speaking, but it begins to be through the composite being brought from potency to the act which is the form." IX Quod!. a. 11, Resp. . . . "to be made belongs only to the composite, to which existence also properly belongs; for forms are not said to exist as subsistent things, but as principles by which composites are; for which reason they are not said to be made by a making that is their own but rather through the making of the subjects." Also In II Sent., d. 18, q. 1, a. 2. Resp. In II Sent., d. 1, q. 1, a. 4, ad 4. In VII Metaph. 6, n. 1386-87. Ibid., lect. 7, n. 1419. On The Power of God III. 8. Resp. Qu. Disp. De Virt. in Comm. a. 11, Resp.

<sup>&</sup>lt;sup>56</sup> Cont. Gent. II. 55. Cf. also On the Power of God V. 4. ad 1 . . . "power of existence is proportionate to the degree in which a form is in a thing (quantum unicuique inest de forma, tantum inest ei de virtute essendi)." Sum. Theol. I a II ae. 85. 6. Resp. . . . "the inclination of the

to existence. "For every thing properly has existence in some nature through the fact that it stands under the complete and proper form of that nature, from which follow both the act of existing and the constitutive intelligibility of the species in that nature." <sup>57</sup> In the universe of existing things there is, therefore, nothing that is without form. "Whatever exists in the universe of things (in rerum natura) exists actually, and matter does not have actual existence except through form, which is its act, so that in the universe of things there is no matter without form. Moreover, since nothing can be included in a genus which is not determined to a species of the genus by some difference, matter cannot be a being (ens) unless it be determined to some special mode of existing, and this cannot be except through form." <sup>58</sup>

All created existence, then, is through some form 59 and as a result form should not be conceived simply as that by

form which is the principle of being and perfection . . . every form intends perpetual existence as far as it can." Sum. Theol. I. 75. 6. Resp. . . . "existence belongs immediately to a form (esse per se convenit formae), which is an act." Op. cit. I. 50. 5. Resp. . . . "existence belongs to a form by virtue of itself (secundum se), for everything is an actual being through its form." The Soul a. 14, Resp. . . . "the act of existing is an immediate result of form, for everything has existence according to its proper form." Also Sum. Theol. I. 9. 2. Resp. Comp. Theol. C. 111. On the meaning of per se cf. Maritain, Introduction, p. 237.

57 VIII Quodl. a. 5, Resp.

<sup>58</sup> On the Power of God IV. 1. Resp. Cf. also On Spiritual Creatures a. 3. Resp. ... "Matter is never denuded of all form." Sum. Theol. 1. 105. 1. Resp. ... "a form is nothing else but the act of matter." Also In II De Anima 1, n. 234. Sum. Theol. I. 7. 2. ad 3.

Also Sum. Theol. I. 66. 1. Resp. especially . . . "To say then, that matter preceded, but without form, is to say that being existed actually, yet without act: which implies a contradiction (est dicere ens actu sine actu; quod implicat contradictionem)." III Quodl. a. 1.

<sup>59</sup> Cf. Sum. Theol. I. 5. 5. ad 3 . . . "every act of existing is through some form." In II De Anima 5, n. 286 . . . "every act of existing is according to some form."

Also Sum. Theol. I. 42. 1. ad 1 . . . "the first effect of form is the act of existing, for everything has existence according to its form."

Also On the Power of God III. 16. ad 21 . . . "since creation terminates at the act of existing as its proper effect, it is impossible that the

which a subject possesses such-and-such intelligible determinations. "The determination of every thing in actual existence (in esse actuali) comes from its form." 60 Hence "the existence of every creature is restricted to one in genus and species." 61 In other words, "every thing has the existence which is proper to its species" 62 and "everything is established in its species through its proper form." 63 For matter itself constitutes as it were a dimension of radical unintelligibility in things. It is a deposit of reality not intelligible by itself. We have seen that even in relation to essence it is merely a potency. Since in and by itself it does not constitute a possibility of existing it is not intelligible by itself. Hence form is sometimes called

things created by God receive their forms from the angels, because every act of existing is from a form." Qu. Disp. De Carit. a. 1, ad 13 . . . "God created natural existence without an intermediary in the order of efficient causality, but not without a medium in the order of formal causality. For He gave to every thing a form through which it existed." On Truth XXVII. 1. ad 3. In I Sent., d. 17, q. 1, Resp. and ad 1.

60 Sum. Theol. III. 75. 4. Resp. Cf. also Sum. Theol. I. 19. 1. Resp. . . . "a natural thing has actual existence (esse in actu) through its form." Sum. Theol. IIa IIae. 179. 1. ad 1 . . . "each thing's proper form makes it actually to be (faciens ipsum esse in actu)." On Spiritual Creatures a. 2, Resp. . . . "each individual thing is actual through some form." Op. cit., a. 3, Resp. . . . "every thing is an actual being (ens actu) through its form . . . hence every form is an act." Cont. Gent. II. 50 . , . "a form existing perfectly in matter makes something to be actually such (facit esse actu tale)." Also In II De Anima 7, n. 319-320. Cont. Gent. II. 30.

<sup>61</sup> Sum. Theol. I. 54. 2. Resp. Cf. also Sum. Theol. I. 118. 2. Resp. . . . "it is not possible for the same identical form to belong to different species." Sum. Theol. Ia IIae. 52. 1. Resp. . . . "if a form, or anything at all, receives the nature of a species in respect of itself, or in respect of something belonging to it; it is necessary that, considered in itself, it be something of a definite nature." In VII Metaph., 12, n. 1564 . . . "of each species there is but one substantial form."

62 In IV Sent., d. 12, q. 1, a. 2, Sol. 3, Resp.

63 In II Metaph., 4, n. 320. Cf. also Sum. Theol. III. 2. 2. ad 2 . . . "to perfect the species belongs to the dignity of the form." Ibid., q. 6, a. 4. ad 2 . . . "the form actually gives (actu dat) the species." In VIII Metaph., 3, n. 1725 . . . "in things composed of matter and form, it is through the form that something is one; both unity and species result from (sortitur) form."

the constitutive intelligibility inasmuch as the intelligible constitution of the species is derived from the form.<sup>64</sup>

We have seen that "every form is determinative of the act of existing itself." 65 Hence "the essential principles of a species are ordered not to existence simply but to the

64 Cf. In VIII Metaph., 1, n. 1687 . . . "form, which is also called constitutive intelligibility (ratio), since it is from it that the constitutive intelligibility (ratio) of the species is taken . . . is conceptually (ratione) separable, because it can be understood without sensible individuating matter. Matter, on the other hand, cannot be understood without the understanding (sine intellectu) of form, since it is not known except as being in potency to form." The Trinity V. 3. Resp. . . . "since every thing is intelligible inasmuch as it is in act . . . it must necessarily be that the nature or quiddity of a thing be understood either . . . or according to what is in place of act, as prime matter through its relationship to form." On Spiritual Creatures a. 1, Resp. . . . "since potency and act divide being (ens) and since every genus is divided into potency and act, the term prime matter is generally used to mean something which is in the genus of substance as a certain potency understood as excluding (praeter) every species and form, and even as excluding privation, and yet is receptive of both forms and privations."

In this last text we are considering matter in itself. Cf. On Truth III. 5. ad 3 . . . "although matter of itself is not able to be, non-the-less we can consider it in itself (secundum se)." Even here it is considered as receptive of form. Hence it remains true that "of itself matter is neither able to have existence nor to be known" (Sum. Theol. I. 15. 3. ad 3). Cf. also The Trinity IV. 2. Resp. . . . "though matter in itself is unknowable . . . it is knowable in two ways . . . by analogy or comparison . . . and by the form through which it has actual existence (esse actu). For every thing is known inasmuch as it is in act and not according as it is in potency."

Cf. also In I Phys. 13, ed Leon. n. 9 and lect. 15, ed. Leon. n. 10. In VII Metaph. 2, n. 1285, 1296. On Being and Essence C. 2.

65 Super De Hebd., C. 2, ed. Mandonnet p. 176. Cf. De Substantiis Separatis C. 6, ed. Perrier n. 44 . . . "those things which participate existence from the First Being participate existence . . . particularly according to some determined mode of existence which befits this genus or this species. Moreover each thing is adapted to one determined mode of existing according to the mode of its substance. But the mode of each substance constituted of matter and form is according to the form, through which it pertains to a determined species. Hence a thing composed of matter and form is by form rendered participative of existence itself from God according to some proper mode."

existence of such-and-such a species." 66 That is, inasmuch as an act of existing is the act of such-and-such an essence it is "as it were constituted by the principles of its essence." 67 With this in mind, St. Thomas speaks of forms possessing degrees of perfection with respect to conferring the act of existing. 68 In other words, "things are not distinguished from each other simply by the fact of having existence, since in this all things agree . . . things differ because they have divers natures, to which existence accrues in divers modes." 69 That is, "the existence of man is determined to the species of man since it is received into the nature of human species; and likewise with the existence of a horse, or of any other creature." 70 St. Thomas calls attention to this through use of the

<sup>66</sup> The Soul a. 1, ad 16.

Resp. . . . "this act of existing is in the thing, and it is the act of the being and results from the principles of the thing." IX Quodl. a. 3, Resp. . . . "existence resulting from those constituents from which the thing's unity is integrated." In III Sent., d. 6, q. 2, a. 3, Resp. . . . "the existence of the composite is caused by the conjunction of its component parts." The Trinity V. 3. Resp. . . . "the existence itself, which results from a union of the principles of the thing in the case of composites, or accompanies the simple nature of the thing as in the case of simple substances."

<sup>&</sup>lt;sup>68</sup> Cf. The Soul a. 9, Resp. . . . "the greater the perfection a form possesses with respect to conferring the act of existing, so much the greater is its power of operating." Sum. Theol. I. 50. 2. ad 1 . . . "in material things there is one thing which determines to a special grade [among beings] and that is the form." Comp. Theol. C. 13 . . . "for through specific differences things are constituted in their proper existence."

<sup>69</sup> Cont. Gent. I. 26.

To On the Power of God I. 2. Resp. Cf. also Cont. Gent. 1. 28 . . . "every nobility of any thing whatsoever belongs to it according to its act of existing: for no excellence would belong to a man from his wisdom, unless thereby he were wise, and likewise for other perfections. Wherefore, according as a thing has existence, so is its mode of excellence: since a thing according as its act of existing is contracted to some special mode of excellence, more or less great, is said to be more or less noble."

Sum. Theol. Ia IIae. 2. 5. ad 2 . . . "if we consider the act of existing itself as participated in this or that thing, which do not possess the whole perfection of being (essendi), but have limited acts of existing (esse imperfectum), just as the act of existing of every creature is; then it is

expression specific existence (esse specificum). That is, every existent subject (that which is) must have a form which makes it to be that which it is or what it is, hence the subject as a whole is said to have substantial and specific existence through the form.71

In other words, existence is attributed to the nature as to that by which a being has existence and to the subject as to that which has existence: "existence pertains both to the nature and to the subject; to the subject as to that which has existence: and to the nature as that by which it has existence. For nature is taken after the manner of a form, which is said to be a being because by it something is." 72

It remains true, then, that "forms are not called beings as though they were the subjects of existence, but because through them something is." 73 So too, strictly speaking, the essence

evident that the act of existing itself with an added perfection is more excellent." Also Sum. Theol. I. 4. 2. ad 3.

71 Cf., for example, On Spiritual Creatures a. 4, Resp. . . . "both the whole body and all its parts have substantial and specific existence through the soul." Ibid., ad 4 ... "the form 'house,' since it is an accidental form, does not give specific existence (esse specificum) to the individual parts of the house, as the soul gives it to the individual parts of the body." In Lib. Dionysii De Divin. Nom. C. 2, lect. 5, ed. Pera n. 197 . . . "third, the determination of the thing in its proper species, which is through the form; fourth, according to its form the thing seeks its perfection not only in specific existence (esse specificum) but also according to its proper operation and end." On Truth II. 2. Resp. . . . "the specific existence (esse specificum) of one thing is distinct from the specific existence of another thing." In III Sent., d. 1, q. 2, a. 1, Resp. . . . "soul . . . inasmuch as the eye is perfect in specific existence (esse specifico)." Also In II De Anima 1, n. 226. In VII Phys. 5, ed. Leon. n. 3. I Quodl. a. 6, ad 3. Sum. Theol. Ia IIae. 52. 1. ad 2.

72 Sum. Theol. III. 17. 2. Resp. Cf. Ibid., q. 35, a. 1, Resp. . . . "person or subject designates something as subsistent, whereas nature is signified after the manner of a form, in which something subsists." Ibid., ad 3 . . . "nature signifies that by which something is, whereas person designates something as having a subsistent act of existing."

73 Sum. Theol. I. 9. 2. ad 3. Cf. also Cont. Gent. III. 97 . . . "so that which subsists is not a form only, nor matter only, which by itself is not an actual being (ens actu), but something composed of both."

Also Sum. Theol. I. 104. 4. ad 3.

does not exist but by the essence something is: "since that which first comes into the understanding is being, it follows that the intellect attributes being to everything that it apprehends. For this reason when the mind apprehends the essence of some being, it calls that essence being, and likewise with any form . . . So when we say essence is being . . . it is not said to be being in the same manner that something subsisting in its own act of existing is a being, but as though by it something is." 74 Of itself, a nature is not able to hold existence as a subject, as that which is: "existence follows nature, not as that which has existence, but as that by which something is: but it follows the subject or person as that which possesses existence. 75 Hence, though St. Thomas employs the expressions esse essentiæ or esse naturæ and esse personæ, 76 this does not mean that a being has some sort of existence proper to the nature in addition to the act of existing of the subject. The nature does not have an act of existing other than that of the subject. It is one and the same act of existing that St. Thomas attributes under different aspects to the subject and to the nature: "to live is nothing else than to exist in such a nature." 77

<sup>74</sup> On Truth XXI. 4. ad 4.

<sup>&</sup>lt;sup>75</sup> Sum. Theol. III. 17. 2. ad 1. Cf. ibid., ad 4 ... "if we consider the body perfected through the soul apart from the subject having both, this whole composed of soul and body, and signified by the term humanity, does not signify as that which is but as that by which something is."

<sup>76</sup> Cf., for example, Qu. Disp. De Unione Verbi Incarnati a. 1, ad 10 . . . "the act of existing is attributed both to the subsisting person, and to the nature in which the person subsists: the subject as it were having existence according to that nature." Also ibid., a. 4. Resp. and ad 1. Sum. Theol. III. 2. 6. ad 2. Ibid., q. 17, a. 2, Resp. and ad 3: ad 4. In III Sent., d. 6, q. 2, a. 2, ad 2. On the Power of God IX. 5. ad 19.

<sup>&</sup>lt;sup>77</sup> Sum. Theol. I. 18. 2. Resp. Cf. also op. cit., IIa IIae. 179. 1. ad 1 . . . "to live is said of the to exist of living things." Cont. Gent. 1. 98 . . . "to live is nothing but a particular kind of existence resulting from a particular kind of form." Sum. Theol. III. 75. 6. ad 2 . . . "the soul is the form of the body giving it the whole order of complete existence (esse perfecti), that is, existence, corporeal existence, animated existence, and so on." The Soul a. 10, ad 16 . . . "the soul is the substantial form of the body giving the whole body and to each of its parts existence and species; and the whole constituted of these parts is one simply." Sum.

The act of existing belongs to the subject as that which exercises the act of existing and to the nature as that whereby it has the act of existing. The designation that which exists is, therefore, reserved for the subject (suppositum) alone.

WILLIAM M. WALTON

St. Joseph College, West Hartford, Connecticut.

Cf. also In III Sent., d. 6, q. 2, a. 2, ad 1. Ibid., q. 3, a. 1, ad 4. Sum. Theol. III. 2. 5, ad 3. Qu. Disp. De Unione Verbi Incarnati a. 2, ad 5. Cont. Gent. IV. 49, ad 4 and ad 5. In II De Anima 7, n. 319-320.



Theol. III. 17. 2. Resp. . . . "to exist possessing a head (esse capitatum), to exist corporeally, to exist animatedly, all these pertain to the one person of Socrates and there arises from these only the one act of existing in Socrates."

#### **Critical Studies**

## THE PROBLEM OF KNOWLEDGE

The Problem of Knowledge, by Ernst Cassirer. Yale University Press, 1950. pp. xv + 334, translated by William H. Woglom and Charles W. Hendel, with a preface by Charles W. Hendel.

In the course of his high praise of Ranke in this posthumous work, Ernst Cassirer writes: "In times of passion and excitement, such a disinterested attitude is apt to be censored, or to meet with strong opposition. On occasions like these, it is certainly fitting to point out what a place of honor Ranke deserves in the history of the problem of knowledge." 1 In these words, the reader discerns Cassirer's own attitude toward the time in world history at which he wrote this book. This fourth and concluding volume of Cassirer's already famous Erkenntnisproblem was written in Sweden in 1940 at the time when Norway and Denmark were occupied, and the Nazis were daily expected in Sweden itself. Many are the ways in which this book shows Cassirer's greatness of thought - not least in its evocation of the spirit of humanistic universality. of liberation from any narrower claims than those of mankind as a developing whole.

The book is intended as a critical history of the growth of the ideal of knowledge in science, philosophy and history since Hegel. In order to give some conception of its encyclopædic scope, one need only mention an incomplete list of the topics which are considered in it: the development of non-Euclidean geometries, the logical foundation of the concept of number, the effect of the quantum theory on the concept of physical knowledge, the development of classification and systematization of natural forms in biology, the effects of Darwinism and of the mechanism-vitalism controversy on biological thought, the development of such modes of historiography as the romantic, positivistic and political, as well as of the history of civilization and the history of religion.

<sup>1</sup> The Problem of Knowledge, p. 236.

The critique of these developments is carried out from within the sciences themselves; Cassirer felt that so great had the apparent fragmentation of knowledge become in our epoch, that only through the process of inwardly reconstructing the growth of the different sciences could clues be found as to the possibility of its eventual reunification. The task of the philosopher is, then, to immerse himself in the different disciplines, and from within, not from without, to demonstrate the possibility of their unification. However deep-seated one's philosophical differences with Cassirer may be, it seems to the present reader that Cassirer has indeed pointed out the possibility of such a unification. But since he had no opportunity to provide a full and explicit conclusion for the present volume, much of his argument must be gleaned through a process of inference which is often subtle and hazardous, and which relies very considerably both upon Cassirer's discussion of other thinkers in this work and upon his own other works.

To make use of Whitehead's terminology, this work might be considered a history of the function of reason from the time of Hegel to the present. It shows the development of the function of reason, and its extension by means of its creative and symbolic activity from one field to another, previously disallowed it. The roots of Cassirer's argument, as one would expect, are to be found in Kant, particularly in Kant's Critique of Judgment, and also, less explicitly, but none the less strongly, in Hegel; the argument is that the reason and the creative imagination cannot in the last analysis be separated. If they were, both would cease to function. The Enlightenment tended to reify reason, Romanticism, the imagination, but the two cannot be severed if the mind is to work in a free, integrating and fruitful manner. I believe it is by means of this fundamental thought that Cassirer brings together mathematics, physics, biology and history, and finally reconciles in the wide field of knowledge, the claims of science with those of religion. The treatment of biology, in fact, provides the bridge between the Naturwissenschaften and the Geisteswissenschaften, and it is most significant that in this section so much attention is given to Goethe's conception of the dynamic idea of nature which is more than a mere concept.

The role of the mind in the formation of knowledge is then active and creative, whether this creative power be shown in the achievement of the postulates of alternative geometries. in the unified symbolic structure of physical theories, in the grasping of the integrating ideas of biology, or in the historian's use of myth and rite to illuminate the consciousness of a people. But if the role of the mind in knowledge is creative, it must also be critical, and our sober recognition of the presence of its activity must lead us to refrain from all metaphysical assertion concerning the nature or essence of reality. But Cassirer's position, it must be said, itself possesses an ontology without which it could not be stated, and as he himself suggests in the conclusion, this immanent ontology is one of becoming rather than being, of the development of the phenomena rather than of the essence of things as they are. We are in Plato's cave, and must learn to see in the dark; 2 yet does not this cave itself contain those absolute standards and values which we mistakenly sought afar? Cassirer leaves no doubt that he means to refute the allegation that historicism must necessarily lead only to scepticism and relativism.3 I would suggest that he does this not by abandoning the conception of essence, but by treating it as immanent, rather than transcendent. Hence his insistence that the problem of the relation between the universal and the particular is the crucial problem of the philosophy of history.

The argument of the book is subtle, and also intricately interwoven. A sense of the concatenation of influences and contrasts developed, of the immense erudition of the work, and of the acute and profound criticism contained in it, cannot be adequately conveyed by any review. It is a mine of suggestions for the fruitful working-out of the philosophy of science and history. The reader in the English-speaking world may feel that an undue weight in the argument has been given to the development of Continental and especially German thought, and that such work as that of Russell and Whitehead

<sup>&</sup>lt;sup>2</sup> Cf. Cassirer's discussion of Niebuhr, pp. 229-230.

<sup>3</sup> Cf. p. 324.

on the foundations of mathematics is unduly minimized.<sup>4</sup> (Whitehead's method of extensive abstraction is not mentioned at all.) Yet it would be ungrateful not to recognize the rich compensation of a deeper insight into the views of many Continental thinkers too much neglected by us. One may also question the omission of psychology from the major sections of the book; its inclusion, especially in the form of Gestalt psychology, would actually have strengthened Cassirer's argument, as he himself indicates in one passage.<sup>5</sup>

It is not possible in the present review to give an exhaustive résumé of a work almost overwhelming in its detail. Only the most general positions taken can be examined. The argument of the sections on mathematics and physics in many respects is very close to that of Cassirer's earlier work, Substance and Function and Einstein's Theory of Relativity. Two fundamental views of knowledge are contrasted: the first, that which would hold that knowledge is a discovery, that it has a representative function, refers to some being, and expresses the nature and essence of that being. Here correspondence between concept and its object is the supreme assumption. The second, on the contrary, the functional view of knowledge, asks not what the objects of knowledge are in their absolute nature and essence, but through what instrumentality of knowledge the knowing of them is possible; it conceives the object not as a given fact, but as a goal and a problem. As the process of knowing advances, its object evolves; it becomes "more and more sharply designated." 6 On this second view, the realm of numbers becomes a definite field of operations,7 and the theory of numbers "one chapter in the general Theory

<sup>&</sup>lt;sup>4</sup> Cassirer refers to Russell's *Principles of Mathematics*, but not to *Principia Mathematica*. In *Substance and Function*, Cassirer referred to Whitehead's *Universal Algebra*, op. cit., p. 96, note 26.

<sup>&</sup>lt;sup>5</sup> Cf. p. 213. Earlier, in Substance and Function, Cassirer had held that psychology yields only narrative descriptive judgments, not necessary scientific judgment. This view was of course connected with a wider argument against psychologism.

<sup>6</sup> Here the influence of the Hegelian conception of the creativity of thought may be seen; one is irresistibly reminded of the Phenomenology of Spirit.

<sup>7</sup> Cf. pp. 62-63. Leibniz had already anticipated this view (p. 30).

of Forms." 8 This synthetic, generative theory of number, with which, of course, Cassirer has most sympathy, is held to escape the difficulties of ontology. The problems suggested to many philosophers by the alternative non-Euclidean geometries are removed when space is understood to be not an absolute ontological entity but an ideal order permitting of free variation in the formation of its postulates. When number systems are seen to be acquired through the contemplation of whole fields within which new relations are discovered, and new numbers are recognized to be "mere symbols of certain systematic relationships within the original realm" of number,9 an analogy to field theory in physics and wholistic organization in biology is strongly suggested. In this functional, relational theory of mathematics, the reader finds himself faced by problems that are difficult, if not impossible, to resolve. The possibility of an application of these a priori constructions to experience 10 is far from clear, and yet that there is such an application is continually assumed.11 Indeed, it is stated that intuition gives a bridge between the world of perception and number. 12 Why are axioms fruitful or relevant? What gives mathematical thought its "readiness for sense material"? 13 If mathematical concepts are "ideals," 14 there must be some source within experience for this activity of idealization. Orderings and relations must, in the last analysis, refer to that which is ordered and related, but the orderability or

<sup>8</sup> Cf. p. 65.

<sup>&</sup>lt;sup>9</sup> Cf. p. 75. The reference here to contemplation and discovery raises the vital question whether the antithesis between the view of reason as creative and the view of reason as discovering is as complete as would at first seem to be assumed.

<sup>10</sup> Cf. p. 79.

<sup>11</sup> While at the close of the section on mathematics, Cassirer states that the problem of the application of mathematics must wait for the discussion of the exact science of nature, it remains true that the application of mathematics has been continuously assumed throughout his discussion. Cf. in connection with this problem his earlier Substance and Function, pp. 115-119.

<sup>12</sup> Cf. p. 79.

<sup>13</sup> Cf. Cassirer's discussion of Poincaré, pp. 43-46.

<sup>14</sup> Cf. p. 44.

relatability of experience remains, at least to this reader, mysterious. As Weyl once said, "Before you can generalize, formalize and axiomatize, there must be a mathematical substance." There must be, that is to say, a basis from which the relational concepts of mathematics are derivable, and to which they in turn relate. I would add that this basis must be found in experience itself, and that the problem of the applicability of mathematics is insoluble unless, as Kant himself suggested in the introduction to the Critique of Pure Reason, sensibility and understanding do possess a common root. In other words, the dichotomy between the terminal nature of sense-material and the relational nature of mathematical form cannot ultimately be held to be absolute in character, if mathematics is to have any relevance whatsoever to our perceptual experience.

It will be said, of course, that Cassirer himself does not intend any such sharp dichotomy between matter and form. He would claim, in his theory of symbolism in the Philosophie der symbolischen Formen for instance, that the sense impression is to be understood as representative of the relational complex of perception. Similarly, in his discussion of the nature of mathematics in the present volume he declares, "The single elements receive their roles, and hence their significance, only as they fit together into a connected system; thus they are defined through one another ... " (p. 26). Yet the problem still remains: how can elements receive this relational significance if epistemologically they are understood to be terminal, and thus apparently neutral to their relatedness? Conversely, if the element is completely defined, or receives all its significance through its relatedness in a system, does it not then lose all character as an element? In the latter case, thought becomes a matter of relations of relations ad infinitum, with no sufficient starting-points in experience for the supposed series of relations. The dilemma can only be solved if the problem is redefined, and the nodal points of experience are seen to have interconnecting possibilities of relationship in their own natures, all of which need not be realized. The particular cannot be completely taken up into any one relational system if it bears within itself the possibility of still other relatednesses.

Cassirer has, in fact, two different conceptions of the given which are never completely fused in his thought. According to the first, the given may be taken, at least psychologically, as a disparate manifold which still requires the work of conceptual transformation, or idealization, upon it. According to the second, there is only a relative given which may be grasped as a starting-point for further conceptualization, but which already possesses intelligible significance as systematically related. In the present work, these two conceptions of the given are clearly suggested when Cassirer discusses the distinction in the thought of Poincaré and Duhem, between brute and scientific fact (pp. 109-113).<sup>15</sup>

In physics a comparable development is traced from the ideal of knowledge implicit in the mechanistic theory which assumed the existence of substance or substrate, and a correspondence theory of truth, to the conception that a physical theory should be an integrated symbolic structure subject to verification only as a systematic whole, and not in terms of its constituent parts. The emergence of energetics and phenomenalistic physics is shown to have been instrumental in bringing

<sup>15</sup> In Substance and Function, there are many passages relevant to this issue. Some of the more definitive passages are found on p. 117, p. 130, p. 189, p. 197, p. 242, and p. 261. On p. 261 Cassirer says: "Permanence is never found ready made in the sensuous experience as such, for the sensuous experience gives only a conglomeration of the most diverse impressions... Permanence only appears to the extent that we are able to transform the sensuous manifold into a mathematical manifold..." etc. Cf. also ibid., p. 166, "All that the 'thing' of the popular view of the world loses in properties, it gains in relations; for it no longer remains isolated and dependent on itself alone, but is connected inseparably by logical threads with the totality of experience. Each particular concept is, as it were, one of these threads, on which we string real experiences and connect them with future possible experiences . . . Thus there is only one reality which is given to us, but it comes to consciousness in different ways; thus at one time we consider it in its sensuously intuitive character but in its sensuous isolation, while from the standpoint of science we merely retain those elements in it which are at the basis of its intellectual connection and 'harmony'." Here the one "given," as coming to consciousness, appears to bifurcate into two "givens," according to the way in which we consider it. But the characteristics it presents in these two forms are certainly very different from each other.

about this revolution in physical thought. The result has been an elimination of the concept of matter as substrate, and a transformation of the concept of the physical object into that of a system of constant relations and functional connections.16 Like the postulates of mathematics, the concepts of physics are now seen to be variable in character; they are symbolic relationships, or maxims for our orientation, patterns for possible experience,17 not copies of actual experience. In consonance with this change of thought, physics has progressively abandoned the use of models, for the atomic world cannot be understood "in that primary sensuous fashion." 18 With the realization that both the postulates of geometry and the axioms of physics are subject to variation, a solidarity of geometrical and physical principles has been achieved, resulting in an intergrated theory which is comparable with experience only when taken as a whole. Yet the problem of how either stimulus from experience is possible in the construction of theories, or comparison with experience in the course of their verification. remains acute and crucial. As Mead has said, progress in scientific thought occurs when the scientist is confronted with exceptions to his own hypotheses in the process of verification. These force him to revise his hypotheses to provide a more adequate explanation for the refractory phenomenon. When, however, the scientific object is resolved into a system of relations and functional connections, and the source of these relations and connections is found entirely in the creative activity of the mind, the very evolution of scientific thought itself would appear to have lost its experimental mainspring. Cassirer does not, to be sure, entirely ignore the fact that experience provides a stimulus for the development of scientific thought, but how this stimulating role is possible, he never satisfactorily explains.

In both mathematics and physics one may accordingly see a movement from the use of concepts based on empirically

<sup>16</sup> Cf. p. 100.

<sup>17</sup> This view is found especially in Hertz, discussed by Cassirer on pp. 106-107.

<sup>18</sup> Cassirer's quotation from Heisenberg, p. 117.

intuited space and time to those of abstract space and time,19 and from the use of concepts of substance to those of function. This movement at the same time constitutes a transition from an ontological to a methodological interpretation of science. But here a paradox becomes evident in Cassirer's thought. On the one hand, he remarks that both the concept of space (which has been particularly connected with the mechanistic theory of substance) and the concept of number have been indispensable for the development of science (p. 98); on the other, he clearly regards the second, or functional frame of reference as the more valuable in its alleged freedom from ontological presuppositions. A similar paradox occurs in his treatment of the cardinal-ordinal controversy with reference to the theory of number (pp. 60-62). The source of such paradoxes is to be found in Cassirer's historicism, which on the one hand leads him to find a certain value in all historical developments by virtue of their very historical occurrence, and on the other hand leads him to ascribe a greater value to those which seem to him to express the presuppositions necessary to the development of historic thought in general.20

In Cassirer's discussion of biology, as has already been suggested, we may find a key to the unity of his work. Already, in the discussion of mathematics and physics the development of an organic conception of knowledge has become more and more central. It is Cassirer's belief that the mechanistic-vitalistic controversy in biology has been resolved through the emergence, on another level, of the biological category of wholeness, a concept which in a different form has also come to characterize field physics, and which may be found as well in Gestalt psychology. As Kant had seen in his treatment of the antimony of judgment, mechanistic and teleological explanations, properly understood, are to be regarded as alternative

<sup>&</sup>lt;sup>19</sup> "Pure time" here is to be understood as a sequence of ordering, not as the element of change. Cf. pp. 77-78. "Abstract space" is to be understood as the form of "possible coexistence" (p. 35; cf. also p. 117). While still associated with spatial intuition, conceptually it has passed beyond its confines (p. 36).

<sup>20</sup> Here again Cassirer's procedure may be compared with that of Hegel.

methods of research, and not as the basis for irreconcilable ontologies. Now that physics has been freed from the domination of the mechanistic point of view, the way is open to a unification of physics and biology as organismic sciences, and at the same time to a specific value and a greater freedom for each.

The solution of this antimony is to a certain extent anticipated in Cassirer's discussion of Darwinism, in which he maintains that Darwin, in his treatment of the laws of biology as historic in nature, had himself made use in a certain sense of a teleological point of view.<sup>21</sup> With Darwin, the earlier contrast between scientific and historical concepts was overcome, and the laws of nature became historical laws. But Darwinism is subject to criticism, first for having supposed that mere historical description could provide an adequate explanation of natural phenomena, and secondly for its use of purposive concepts (such as survival of the fittest) in a manner which led to dogmatic metaphysical conclusions, even though Darwin himself did not intend this result.<sup>22</sup> In reality, the thesis of evolutionary history is to be understood simply as a maxim, a regulative principle for our thought.<sup>23</sup>

Space does not permit adequate discussion of this most interesting biological section. But the problem of the nature of causation, which is raised here in its most crucial form, must in any case be considered. Notwithstanding the solution of the antimony in terms of the concept of "wholeness," there remains still embedded in the course of the discussion, the original dichotomy between a causation which is regarded as wholly mechanistic in nature on the one hand, and the factor of form, structure or organization on the other. This dichotomy

21 Of course, as Cassirer states (p. 165), Darwin himself "appears to have been thoroughly in earnest about the elimination of teleology."

<sup>&</sup>lt;sup>22</sup> In his critique of Darwinism, Cassirer assumes that the idea of survival value is essentially purposive. Here there would appear to be a confusion of the subjective and the objective meanings of "purposiveness." From the subjective standpoint one may choose survival as a purpose, yet when some organism as a matter of fact survives, is this survival necessarily purposive?

<sup>28</sup> Cf. p. 175.

is of course the heritage of Kant. Furthermore, mechanistic causation tends to be regarded as external or transeunt in character, whereas the factor of form or structure, in biology operating in terms of the maintenance or restoration of the character of wholeness, must, at least by inference, function in an internal or immanent manner. By what right the latter can be denied a causative role, it is difficult to see. One must conclude that the original definition of causation has been too narrow, and indeed, not in accord with Cassirer's own stress on the concept of function. Also, a reaction against the ontological implications of Driesch's concept of "entelechy," an opposition to any introduction of transcendent final causes, influences the argument, as would be expected. An even deeper source of the difficulty may perhaps be found. In a view which stresses, as Cassirer's does, the formal or relational factor in knowledge, the problem of causation must always remain peculiarly difficult, involving as it does the explanation of change or becoming. While Cassirer emphasizes the dynamic activity of knowledge, it is the order of this activity alone which his relational concepts can articulate, and the fluctuating changes of the natural world must elude their grasp. Here we find a fundamental conflict in Cassirer's thought, which on the one hand treats the symbolic form as actually functioning within the phenomenal world in a creative manner, and on the other hand would strictly distinguish the question of order, structure or wholeness from that of the causation of changing events. The second position in the last analysis rests on a severance of meaning from fact, whereas the first would endeavor to overcome this division. The conception of the synthetic whole which organizes its parts in a significant teleological relationship gives a key to the possibility of overcoming it, yet Cassirer is prevented by his own epistemological assumptions from making an adequate ontological use of this possibility, and therefore must leave incompletely resolved the problem of the nature of causation. Here indeed one feels that Cassirer's references to Goethe suggest a certain completion to his thought which he himself could not, as a critical thinker, allow himself explicitly to formulate in a conclusive manner. For Goethe there was an interpenetration of the particular and the universal, an irreducible relation between the factual and the theoretical. The one symbolically represented the other, and the bridge from concepts as such to the true ideas of nature was to be found in the synthetic work of the imagination. In Goethe's conception of the immanent law of nature which guides its transformations, a causative conception of structure may be found which permits both of stability and of unceasing variation in its external adaptations. This possibility of variation of biological form can indeed be said to manifest a certain analogy to the variability of mathematical and physical structures which Cassirer had emphasized in the earlier portions of the book. One may add that von Uexküll's conception that the organism itself actively creates its environment, calls for a new statement of the causal problem in terms of the means-end relationship, a statement which is indeed anticipated in Kant.

The polar contrast between the internal and the external which has emerged in Cassirer's treatment of biology constitutes a basis for the exploration of the meaning of history with which he concludes this volume. History, he declares, had never been satisfied "to represent merely the external course of events and apprehend their causal relationship," 24 yet with Herder it received a new emphasis; its focus became the inner life of mankind and the development of the spirit.25 Romanticism, which sought to express this inwardness of human nature, should not be rejected as a movement toward irrationalism, for in effect the great romanticists created new instruments of the reason with which to explore the inner depths of human consciousness.26 In his discussion of historiography. Cassirer places great emphasis upon the development of the history of civilization, while he has been criticized elsewhere for a tendency to neglect political and economic history.27 The ground for this criticism may be found in his assumption

<sup>24</sup> Cf. p. 219.

<sup>25</sup> Cf. pp. 219-220.

<sup>26</sup> The greatest romanticists, indeed, distinguished carefully between science and myth (p. 227).

<sup>&</sup>lt;sup>27</sup> In the volume on Cassirer's philosophy in the Library of Living Philosophers, Holborn, Randall and F. Kaufmann remark on this neglect, as C. W. Hendel points out in his preface to the present volume (p.xiii). It is indeed surprising that Cassirer never mentions Marx.

that the history of civilization reveals particularly the inward activity of spirit, while political and economic history as such had tended to deal with external causation. Of course, such a dichotomy cannot in the last analysis be maintained, nor does Cassirer, save as a matter of emphasis, maintain it. He discusses political historians who are also, inevitably, concerned with things of the spirit. But he has the evident feeling that the history of civilization, transcending as it does all narrower definitions of the scope of history, is the supreme route toward that magnificent universality of human thought which he prizes. In the words of his own paraphrase of Burckhardt, "Where world history is rightly seen, where it is not represented merely as a sum of external events, but recognized as a story of forms of life, there it gives thinking man an openness of the spirit for all that is great . . ." <sup>29</sup>

Repeatedly Cassirer says that the problem of the relation between the universal and the particular is the crucial problem of the philosophy of history. The desire to find recurrent and meaningful forms in history may, it would seem, be compared with the search for forms of organization in biology, or with the movement toward symbolic structures in physics or new concepts of relationships in mathematics. Because of the immanence of these universal forms in history, no epoch or locus has the right to be chosen as a preferred standpoint; in the words of Herder, each being in history is here for its own sake; "all is at once [both] means and end." 30 In this historicism, exemplified by Herder, Ranke and Burckhardt, we may find the source of Cassirer's deep conviction that historicism ought not to be regarded "merely as the forerunner of scepticism and relativism." 31 At all times and places in world history, it should be possible to discover the universality of the human mind, but we discover what, on a deeper level, is created by

<sup>28</sup> Cf. p. 266, "If one still wanted to treat history as purely a history of states, he would, even if unwillingly, have to give the concept of the state an entirely different meaning from that which appeared in the external expansion of its power and in its political and military struggles" (Italics mine).

<sup>29</sup> Cf. p. 279.

<sup>30</sup> Cf. p. 221.

<sup>31</sup> Cf. p. 324.

human consciousness itself. It is for this reason that Cassirer's treatment of history ends with the discussion of the history of religion, for the truth of religion is held to be in the deepest sense the truth not of an external world, but of the developing human consciousness itself. Hence the statement in the last paragraph of the work, "Historicism found Being no longer in God or in the Absolute Idea, and wanted only to hold to it in the human mind and the totality of humanity." 82

The universality of history is then a universality that is revealed in becoming, that has evolution as its correlative. Here we encounter on another plane the problem we have already considered in relation to the question of the meaning of biological causation. What is the nature of historical causation, or can we indeed legitimately speak of any such phenomenon? If causality is construed in terms of a lawful natural order of events, historical causation regarded as the working of inner spiritual forces would appear to become transcendent and inexplicable. This difficulty Cassirer points out in Humboldt and Ranke; he feels that their assumption of "another kind of cause" led to the establishment of two independent causal series whose relationship became something unintelligible.33 Yet one cannot help feeling that a similar difficulty is present in Cassirer's own thought. On the one hand, he would wish to apply the principle of causality, conceived as universal determination, to the entire realm of knowledge; on the other, he would wish to insist upon a unique difference between the influence of ideas as the actual creative forces of history, and explanation in terms of natural law. Historical form is not static but dynamic; it has its being in its creative functioning; yet the mode of this functioning is as a directive rather than a law.34 Hence Cassirer values Burckhardt's "fluid and open" concepts, the route to which is artistic intuition,

<sup>82</sup> Cf. pp. 324-325.

<sup>38</sup> Cf. pp. 241-243.

<sup>34</sup> In Kantian terms, it is regulative rather than constitutive, (as-biological form, it would seem, must also be, in the last analysis). Cf. Cassirer's note on the exposition of Rickert's theory in S. Hessen's "Individuelle Kausalität," Substance and Function, note 85, pp. 226-228, as well as his statement, ibid., pp. 232-233, that the subjects of history are ethical personalities.

higher than the rigid forms of Lamprecht, grounded in his conception of scientific law.<sup>35</sup> These fluid and open concepts may be compared with the variable forms of Goethe, and we have seen that for Cassirer all natural forms may be shown to possess, each in its own way, such a variable and symbolic character. If this be the case, then the problem of historic causation should not be essentially different from the problem of natural causation as such. Yet because of the implicit retention of a sharp distinction between the internal and the external, and the consequent restriction of the term "causality" to the external sphere, the creative functioning of ideas becomes something mysterious, although it is the very presupposition upon which the whole of Cassirer's thinking is grounded.

This discussion of Cassirer's work might well be criticized for attributing to the author a failure to provide ontological solutions which the book was never intended to give. He himself says at the end of his consideration of history that the outcome of the development of historical science has been, not to find a unified solution of the problem, but to recognize more clearly the nature of the historical task.36 This conclusion is in accord with his general position in the volume. In this review. however, I have endeavored to show that in any such clarification of the nature of the task of knowledge, certain ontological presuppositions emerge, which must be evaluated on their own level, if the inquiry as to epistemological validity is to proceed. Thus the problem of the nature of causation in Cassirer's discussion is inextricably interwoven with the problem of the relation between meaning and fact. That meaning and fact do possess relevance to each other. Cassirer never doubts. He criticizes equally that extreme empiricism which blindly assembles facts, treating them in themselves as knowledge. and that dogmatic rationalism which equates knowledge with its own static formulæ. In this work he has shown in an incomparable manner how the development of knowledge actually takes place through a process of reciprocal action of the content on the method of science, and of the method upon the content. Yet only when the ontological relations of universal to individ-

<sup>35</sup> Cf. p. 290.

<sup>36</sup> Cf. p. 325.

ual are reexamined will the key to the relevance of the two factors be found, and with this the full explanation of the creative functioning of reason.

There is a sense, indeed, in which Cassirer's philosophy is representative of a much wider movement of thought in our period. The refraining from all metaphysical assertion, the belief that knowledge does not require a reference to the ontologically actual, has been characteristic not only of Neo-Kantians but of phenomenologists and logical positivists as well, however different from one another these groups at first may seem. For Cassirer, all metaphysical problems become methodological ones, and every apparent solution becomes in its turn a task. Yet knowledge itself on this basis can achieve no points of consummation, and its goal must always elude us.

There is, however, an implicit ontological assumption upon which the possibility of this unceasing transformation of thought is based: namely, a reflection in terms of becoming of the Hegelian doctrine of the concrete universal; Cassirer defines the individual, in the last analysis, in terms of its inclusion within the systematic connection provided by the universal, and it is this inclusive comprehensiveness of the universal which is in actuality for him the goal of thought. Once this identification is made, however, knowledge loses its roots in existence; it is transformed into a play of symbolic forms. Only when the reality of an existential matrix is recognized, from which epistemology draws its life and sustenance, and toward which again it must be constantly referred, can knowledge itself be saved from becoming in the end a vanishing apparition.

Reference must be made in closing to the excellent translation by W. H. Woglom and Charles W. Hendel, as well as to Professor Hendel's illuminating preface. The Yale University Press deserves much commendation for making this work available in an English translation.

ISABEL STEARNS

Bryn Mawr College.



# A METAPHYSICAL PHENOMENOLOGY

1

## Introduction

Of the three young men who assisted Husserl in his last years at Freiburg, Ropohl was the first to surrender to Heidegger's new philosophy. Fink, after years of loyal administration of Husserl's literary remains at Louvain, is now out-existentializing Heidegger, with a Hegelian tinge. To Ludwig Landgrebe we owe the brilliant job of editing Husserl's Erfahrung und Urteil. In his Phenomenology and Metaphysics 2 he now takes his turn at attempting — disrespectfully stated — to "heideggerize" Husserl, likewise with a Hegelian tinge.

Phänomenologie und Metaphysik is a collection of essays and lectures covering the period from the early thirties to the author's Antrittsvorlesung at the University of Hamburg, about 15 years later. It offers the interesting spectacle of a germ, planted in phenomenological soil, growing under the foggy showers of Dilthey's Philosophy of Life and the tempestuous rains of existentialism into the flower, or rather bud, of metaphysics as "knowledge of the Absolute." "Whether and how metaphysics is still ... possible ... is a question of life and death for the philosophy of the future" (p. 8). Landgrebe, conscious of the spiritual vacuum created by the Nazi "philosophy" of blood and soil, sees the function of his book

<sup>&</sup>lt;sup>1</sup> Ropohl died very young. The manuscripts which he left behind remained unpublished. His keen, penetrating, highly original thought, based as it was on a thorough study of the history of Western speculation, would be a welcome trouble maker on any philosophical scene, but particularly so, I should think, on the German scene of today which seems, not only politically, more a revival of pre-Nazi parties and schools than the beginning of new reflections and forms. I wonder what hope there is for an early editing and publishing of what is left of Ropohl's writings.

<sup>&</sup>lt;sup>2</sup> Phänomenologie und Metaphysik (Hamburg.: Marion von Schröder Verlag, 1949), 207 pp.

as that of re-establishing contact with the great Western tradition in philosophy. The contact is to be established by introducing the reader into phenomenology, with the avowed purpose of finding in the phenomenological method a new foundation of metaphysics (p. 9). Husserl's main effort appears to Landgrebe to be directed towards "understanding the world from inside, as forms of the absolute life." And yet, he recognizes as Husserl's two main philosophical motives the search for the highest possible degree of clear and logical thinking, on the one hand, and for an absolutely unprejudiced rendering of immediate experience, on the other (pp. 14 seq.). How did these very respectable motives grow into a philosophy which "is a neighbor to art, a creative event breaking into the world, a neighbor to art by virtue of the naturalness (Selbstverständlichkeit) with which it . . . exists unquestionably and once and for ever: as natural as a tree, rooted in the soil, thus still bound to the earth at the timberline, yet its branches, defying the storm, freely stretching towards the deep, clear mountain sky, in a dialogue with eternity" (p. 21)?

I cannot help confessing that there is something deeply disturbing in this development of Husserl or, in any case, in the interpretation that Landgrebe gives us of this development. In a rarified form, a kind of blood and soil romanticism seems to be at work, blood becoming spirit and soil eternity, or the absolute. Must it really be philosophy's fate to proceed in such an irrational direction? Or is this nothing but a perversion. so strongly ingrained in German tradition that it is capable of deflecting the Husserl of the Logical Investigations and of the Cartesian Meditations into the Husserl to whom the grand theme of the last decades of his life was, in Landgrebe's words, "the originality (Ursprünglichkeit) of life as the creative activity of the spirit out of which comes everything which stands before us as a being, complete and at rest" (p. 19) a perversion capable of deflecting the sober Landgrebe of Urteil und Erfahrung into the Landgrebe who exclaims: "Knowledge which is not knowledge of the absolute does not deserve this name" (p. 199)?

It could also be, however, that the search for the absolute. which seems to many of us a romantic and irrational hangover from pre-scientific days, is a legitimate aspiration which our empiricistic philosophical climate and the relative ease of our life do not permit us to feel deeply and openly express. Perhaps it is indeed philosophy's function to proceed towards the irrational, or rather meta-rational. What is disturbing in Landgrebe is not the advance itself towards the metarational, but the irrational, unmethodical style of this advance. a lack of any systematic reflection upon both method and language in the field of the meta-rational. Landgrebe apologizes for undertaking his metaphysical enterprise "without a previous presentation, step by step, of its methodological presuppositions" (p. 11). Very few of the new German metaphysicians feel the urge for such an apology. Although this modest survival of the old-fashioned Husserlian rigor within existentialism is a hopeful token, I am afraid that I cannot share Landgrebe's optimism with respect to his own metaphysical undertakings. It is precisely because of the lack of systematic methodological reflection upon the conditions of discourse concerning the meta-rational that his metaphysics strikes me as being much closer to an etherialized blood and soil romanticism than he himself would like it to be. What is needed today is a rational, methodological, conscious approach to the meta-rational, and not the kind of irrational, undisciplined vagaries indulged in by existentialists and existentializers.

#### II

## DILTHEY AND HUSSERL

The interpretation of Husserl's phenomenology as a basis of metaphysics is the main goal of the book. A first step in this direction is taken in a discussion of phenomenology and Dilthey's philosophy of life, under the title: the problem of the historicity of life and Husserl's phenomenology. The essay does not lack a certain dramatic flair. Dilthey's position is first shown to be superior to Husserl's insofar as life

seems to be a truer dimension for an understanding of historicity than Husserl's consciousness; but then phenomenology is re-interpreted in such a way that Dilthey is seen never to have reached Husserl's radical depth. Husserl's and Dilthey's respective positions are presented in a masterly way. As they are still unknown to many of us I should like to go into some detail.

The problem of historicity which Anglo-Saxons have practically ignored 3 has been one of the main German worries since Herder, or at least since Hegel. It is in reality a host of problems, methodological, epistemological, ontological. Dilthey gave it a Kantian turn. Kant had asked what the conditions are that make it possible for objects having the nature of scientific facts to be given us. Similarly, Dilthey asks what conditions make it possible for historical events to be given us. Yet whereas the search for the conditions of possibility led Kant into the abstract realm of the transcendental subject, it leads Dilthey to man himself, the concrete historical individual in whose understanding alone past events come back to life and gain what meaning they have. "Thus the problem of historicity becomes the problem of the historicity of the subject that understands history" (p. 33). However, the understanding of a historical event involves more than the merely rational acts from which the natural sciences result: it involves and engages the historian as a thinking, feeling, willing being. In other words, "to understand" is quite different from "to know" in that it requires a discovering of the I in the Thou, a getting inside the object to be understood. This sounds like a humanistic brand of solipsism, but according to Dilthey the I understands itself always as a center of force standing in mutual dynamic relation with other such centers, thus forming a nexus of windowed monads. The concept of life, as used by Dilthey, frequently means the invariable structure of the dynamic nexus between individuals conceived as centers of force. However, this nexus, life itself, is not something that just is. It is what

<sup>&</sup>lt;sup>3</sup> The few exceptions I am acquainted with, such as Collingwood and Mandelbaum, have obviously been greatly influenced by Hegelians.

it is only in the understanding of it by the living units themselves. They stand in the nexus by understanding it. Thus. life as the invariable structure of the nexus between individuals is, so to speak, pushed back into the individual and becomes the invariable structure of the nexus of his experiences (Erlebniszusammenhang). Hence, the problem of historicity is turned into a psychological direction - psychology understood as an understanding psychology over and against any naturalistically explanatory or introspective psychology. The main category of this psychological analysis of the dynamic living unit is significance (Bedeutung). The historian searches for this significance through an interpretation of life's objectifications that form his immediate subject matter. Dilthey's thisworldliness declines to search for a transcendent principle of historical life. The historian has "to find significance in life itself, as it has objectified itself in a historical form, and not in something that lies behind life; and vet, he has to comprehend life as 'unfathomable' and 'enigmatic,' as something that always breaks the forms it has created, as something that, while it menaces our existence with the fragility of these forms. vet at the same time lets us rest in it, in life as 'the continuity of the creative power' which produces new forms out of the broken ones" (p. 37).

The problem of historicity carried Dilthey from history as the subject matter of the historian to an understanding of history, from the understanding of history to the making of history in terms of life as the dynamic nexus between centers of force, from the making of history to an understanding of the making of history (life as the nexus of experiences in which a life unit gains significance); and finally, from an understanding of the making of history to a making of the understanding of making history, to life as the irrational depth out of which all historical forms emerge and into which they are dissolved. There is more than caricature in this summary. While it shows the startling ambiguity and vagueness of Dilthey's conception of life, it does also show, in this intertwining of the understanding and making of history, an essen-

tial characteristic of human existence, felt but perhaps never quite clearly stated by Dilthey. Man, in his doings and undoings, is in a strange and elusive way aware of the essence of his doings and undoings. If we call this peri-conscious openness for essences "understanding," human factuality is distinguished from physical factuality by an additional dimension, the dimension of understanding.

This, however, is not the direction in which Landgrebe goes in his discussion of Dilthey. His purpose is to show that the phenomenological approach to historicity leads beyond Dilthey's conception of life to that of transcendental subjectivity, and does so although, at a first glance, phenomenology seems to deal with essences, not with facts; it seems to exclude from the sphere of philosophy the flux of historical life, the realm of brute factuality. Moreover, its point of departure as well as its final sphere of research, the transcendental consciousness, seem to be only tangential to the sphere of history.

Husserl started his philosophical investigations in a field that is the extreme opposite of the flux of history, in the field of logical and mathematical ideality. Recognizing with Bolzano the character of ideal unity that propositions have over and against the subjective acts by which they are apprehended, he argued against any psychologic attempt at explaining away this ideality. Any ideal unit such as a proposition is what it is as the correlate of subjective syntheses of identification. This principle of correlation between the identity of the object and the subjective syntheses of identification, discovered in the sphere of ideality, is then applied to the whole sphere of human experience. Husserl's Ideas elaborates the implications of this method, stressing in particular its non-empirical character. The question is not what, in fact, are the acts involved when I perceive this table before me, but "which subjective processes of experience in general are necessary so that being of this or that kind can at all (überhaupt) become a datum in our experience" (p. 26). This stage of phenomenology is called the stage of the static intentional analysis. Objects are simply indications of the kind of intentional acts that must be pre-supposed in order for such an object, in the meaning that it has for us, to appear as an identical one. At this stage, phenomenology aspires to be for psychology what Euclidian geometry is for empirical space, and Husserl's two main scientific interests, mathematics and psychology, have come to a unique synthesis.

Intentional acts themselves are units of durations within the immanent time consciousness. Such a unit of duration, in turn, is indicative of activities in which it is being constituted. Obviously, such a regression would lead ad infinitum. Hence it is said that the intentional acts which constitute objective units, constitute themselves through a passive synthesis as temporal units, and this not in the sense of filling out an empty time form, but in the sense of constituting the temporality, the flux character itself of consciousness.

This is the point where historicity finally becomes a theme of Husserl's thought, namely as temporality of the flux of intentional consciousness. Such an approach to the problem of historicity, compared with Dilthey's, would seem hardly able to do justice to it. For Husserl, the subjectivity of the stream of intentional acts is the subjectivity of the solipsistic Ego, whereas for Dilthey subjectivity is at once understood as intersubjectivity, as a force among other forces. Secondly, Husserl's subjectivity is restricted to the sphere of intentional acts of consciousness, while Dilthey's subjectivity is that of life, comprising the whole structural context of man, of which the sphere of intentional consciousness seems to be only a small portion. Finally, the consciousness posited by Husserl is the pure consciousness of merely ideal, essential connections: "instead of the concrete flowing of life, the rigid idea of flux" (p. 31).

It is Langrebe's re-interpretation of Husserl, to which we now turn, which assures the victory of phenomenology over the philosophy of life.

Every object of our experience is given to us in "the horizon of a determined and typical interpretability" (p. 43). Everything experienced, precisely as it is given to us, implies

patterns of possible further experiences. These implications of possible further experiences form the meaning of the object as given. True to the basic principle of the phenomenological method, according to which anything given serves only as indication of the acts by which it is constituted, these implied patterns are taken to be indications of a passive synthesis in our consciousness. Passive syntheses must always have taken place in order that "a being of a certain definite meaning with certain definite horizons ... can be given us" (p. 45). Dilthey's life as well as Heidegger's worldliness (In-der-Welt-Sein), so Landgrebe would claim, are far from being anything ultimate. The phenomena they point out and the whole sphere of their analyses should be taken only as orientation marks leading to the realm of the transcendental subjectivity in whose passive syntheses they are being constituted. Intentionality itself turns out to be only a derivative phenomenon (p. 48) that has its origin in the sphere of passive syntheses. "The flux of consciousness, to which Husserl is led as the basic region in which it constitutes itself in its own temporality, is ... not a mere abstract sequence of intentional acts, but a passive doing (Geschehen) which forms ... the world itself as horizon, as totality of the possibilities of our experiencing activities. Only one of the possibilities thus outlined are the acts of objective directedness" (p. 49). Finally, the concept of passive synthesis serves to lay the Kantian ghost, always threatening, of a transcendental subject understood as "the ideally possible subject that must necessarily be posited as correlate of the ideal objective units" (p. 31). The transcendental consciousness, correctly understood, is my consciousness, the consciousness of a particular individual whose passive syntheses are the true "conditions of possibility," the conditions of the possibility of anything, including myself, occurring to me as a being having such and such a meaning. Here in this realm of passive syntheses within the sphere of subjectivity is the "absolute point of departure for all philosophizing... The absoluteness of philosophy as science means nothing else but ... the absoluteness of the task to return to the always identical point of departure ... to the transcendental subjectivity ... to its constituting activities which ... become accessible in their products" (p. 52).

Husserl's transcendental consciousness, which seemed at first unable to compete with Dilthey's life in a philosophical account of historicity, has now been shown by Landgrebe to be, in its passive syntheses, the true sphere of absolute beginnings which philosophy has in vain been seeking for so long and into which Dilthey had failed to descend, stopping halfway at life.

There is still, however, the Husserlian opposition of essence and fact, apparently dooming phenomenology to a rationalistic Platonism unable to account for the historicity of human existence. Landgrebe proceeds to show that the true function of Husserl's method of free variation of the factum in order to find its essential structures, is that of "articulating the possibilities of the constitutive activities of the transcendental subjectivity" (p. 53), or, in other words, of articulating the possibilities of forming a world. Only in the light of these pure possibilities can the world as actually constituted become visible in its horizons and limitations. Hence, the ideal realm of essences, of pure possibilities, is meaningful only with regard to the transcendental subjectivity as the ultimate fact; it is meaningful in that it makes the transcendental subjectivity aware of its world-constituting possibilities.

Landgrebe's presentation of the issue between philosophy of life and phenomenology is focussed on the concept of passive synthesis. He finds in it the phenomenological source of Dilthey's *Life* and Heidegger's *In-der-Welt-Sein*. Let us look at it more closely.

Landgrebe is very definite in stating that this passive synthesis is not a logical construction substituting for the older concept of association, and populating with logical fictions the sphere of consciousness below the introspectively known. Now, I will agree with him that anything experienced is given in horizons, that these horizons are given as patterns of

possible experiences, and that an analysis of the hierarchy of such patterns is an important subject without which any theory of knowledge must fall short of its goal. Yet I do not see what the passive syntheses are if they are not logical constructions. I am not arguing empiricistically, namely that they are in principle unverifiable and unconfirmable and the concept therefore meaningless. Against such an empiristic argument Landgrebe would probably assert that passive syntheses are necessary conditions of the possibility of observed phenomena, in this case the observed phenomena being the horizontal structure of our experience. But what is a condition of possibility other than a logical construct? And this particular logical construct, this passive synthesis is a necessary one only if we admit as an axiom that whatever is given in experience is the product (Leistung) of the acts by which we experience it so that even if something is given as independent of our experiencing it, this independence itself would only be constituted by certain patterns of synthesis of intentional acts. This is indeed a basic axiom of Husserl's phenomenology and it leads him into what I consider the absurdities of his transcendentalism, of the pure consciousness that constitutes itself in its own flux. Is there really in principle so basic a difference between the old-fashioned egocentric predicament and the Husserlian idealism which, through the putting in brackets of the natural Seinsthesis, reduces beings to meanings and then proceeds to an intentional and genetic analysis of the acts in which these meanings are constituted? I believe that Heidegger is perfectly right when he points out that, first, in the basic axiom mentioned above. Husserl is victimized by an epistemological subject-object scheme whose unconscious presuppositions vitiate from the start Husserl's assumedly presuppositionless phenomenology; and, secondly, the bracketing of the Seinsthese neutralizes the essential feature of human existence and thus leads to this unwholesome spectre. transcendental subjectivity, with its fairy tale of passive syntheses.

I will not stress the ambiguities of the concept of "constitution," in which the transcendental consciousness is said to engage. Nor shall I ask in what possible sense of the term the transcendental consciousness can be called either a "factum," as it is obviously a logical construction, or "my own," as, to say the least, I rather belong to it than it to me. But I should like to formulate what I consider to be a basic problem in contemporary philosophy. In his Cartesian Meditations Husserl states that his transcendental idealism is "une explication de mon ego en tant que sujet de connaissances possibles . . . l'explication du sens de tout type d'être que moi, l'ego, je peux imaginer..." (Méditations Cartésiennes, p. 72). Now supposing that this program is a sound one; supposing that the whole phenomenological apparatus of reductions leading to the transcendental sphere is not invalidated by objections some of which were stated above; supposing even that this program has been successfully accomplished, what have we gained? - a "science egologique systematique." We have found, and in an absolute way, how nature, culture, the world in general have been constituted. Is this really what we as philosophers wanted to do? Does the knowledge of this How make us understand the Why of this constitution? Are we not being led in philosophy itself to the same resignation that characterizes the climate of contemporary science, the resignation from the Why to the How? What is the basic difference between philosophical understanding and scientific knowledge? Landgrebe tells us that philosophy is after absolute beginnings, that philosophical knowledge is knowledge of the absolute. Whom can such formulations still satisfy? Our task today is neither to limit ourselves to the rowboats of logical analysis nor to build another version of the absolutistic steamer, as Landgrebe does, but to engineer an altogether new kind of ocean-going vessel or, in other words, to explore systematically the possibilities of a rational approach to the meta-rational.

#### III

## HEIDEGGER AND HUSSERL

Heidegger, whose shadow was already threateningly present in the essay just discussed, becomes the center of attention in an interesting chapter entitled: "Husserl's Phenomenology and the motives of its transformation." A confrontation of Husserl's phenomenology with Heidegger's existentialism serves as a point of departure into Landgrebe's own conception of phenomenology as metaphysics.

In Landgrebe's presentation of the growth of Husserl's phenomenology, the final end, which at first implicitly and later more and more explicitly evolved, is the absolute subjectivity as the soil that metaphysics cultivates, and the phenomenological reductions as "the entrance door to metaphysics, nay, as the very method of metaphysics" (p. 81). In a fascinating and informative sketch this motive is traced from its unconscious beginnings in Husserl's conception of intentionality to the final claim that "any question concerning the meaning of being... can only be a question concerning the activities of consciousness, in which this being shows itself, and which alone give meaning to the propositions about it . . Nothing that could possibly become a philosophical theme can remain outside" of this universal claim of the phenomenological method (pp. 81 seq.).

As a prerequisite for his descent into pure consciousness, Husserl saw before him the task of liberating the world, as given in our every day experience, from all interpretative superstructures such as are, for instance, the sciences, and of returning to a sphere of unadulterated, original, pure experiences. The return to this nucleus of pure experiences is a merely preparatory step. It helps us gain the guides leading to the analysis of the acts in which the sphere of pure consciousness constitutes itself. Heidegger, in Sein und Zeit, appropriates Husserl's attempt to unfold the original stratum of pure experiences; but he changes the whole direction of the

enterprise. Instead of beings as immediate objects of pure experiences. Heidegger posits Being as the subject matter of phenomenology, which thus turns into an ontology. In order to make our implicit understanding of Being explicit, we must first of all understand that being which understands Being. We must analyse the existence of man. This ontology fundamental to all other ontologies is given in Sein und Zeit. Where Husserl takes us to the sphere of transcendental consciousness Heidegger leads to the geworfene Wurf, to the facticity of human existence. Husserl focuses on intentional acts; Heidegger evokes the non-intentional experience of anxiety as an openness for the Nothing, in the horizon of which Being alone can be given. To Husser!, man's relation to Being has the character of a thetic act and must be put in brackets; Heidegger puts it, as transcendence, in the center of his conception of man. Where Husserl sees in man a fact whose meaning can alone be gained by reducing it to the transcendental subjectivity, Heidegger penetrates beyond the uneigentliche existence into the experiences in which man exists eigentlich. Husserl seeks for the sphere of absolute beginnings, Heidegger emphasizes the finitude of man. While Husserl enlarges doubt to the universal theoretical attitude of the phenomenologist, Heidegger talks of the resoluteness (Entschlossenheit) that explicitly takes over finitude as revealed in anxiety.

The net result of this confrontation by Landgrebe is two-fold. On the one hand, phenomenology as practiced by Husserl, is shown to have a basic limitation indicated by its implicit identification of "to be" with "to be object." On the other hand, this limitation is asserted not to belong intrinsically to an ideal phenomenology, a phenomenology freed of Husserlian shackles. In this ideally conceived phenomenology there would be ample space to cope with the problems of existence raised by Heidegger.

In what direction this Landgrebean conception of an ideal phenomenology would have to proceed is indicated in the essay, "World as a Phenomenological Problem." Briefly, Landgrebe now sees the limitations of Husserl's phenomenology in two points. Firstly, Husserl failed to show the self-production of consciousness with respect to the lowest stratum of its content, the hyletic data, the sensuously given. "Hence if we want to understand world in its total horizontal structure as constitutive product of transcendental subjectivity, even this last sphere of sheer data (Vorgegebenheit) . . . must be shown to have its constitutive origin in activities of the transcendental subject" (p. 129). It is interesting that in this connection Landgrebe refers to the German idealists who, in their attempt to overcome the Kantian opposition of passivity and spontaneity, already "divined this ultimate goal" (p. 129).

Secondly, and in closer contact with the preceding essay, the limitation of Husserl's phenomenology is seen in that it does not ask radically enough the question concerning the origin of he world. "The attempt to posit the question of the 'reality of the world as a question of the origin of the object, is doomed to failure" (p. 130). "To be" cannot be reduced to "to be object." Husserl sees the givenness of a world only in the consciousness of the possibility of an unlimited advance or rather process of experience. Yet a world is originally given as the all-embracing horizon of familiarity. The much more genuine and radical context in which to ask the ultimate question concerning the origin of the world is the existential phenomenon of Grenzsituation (radical crisis) in which this familiarity is threatened and becomes questionable.

Landgrebe's phenomenology "advances," then, in two directions beyond Husserl's. Husserl's idealism is to be radicalized so that even the hyletic data are shown to originate in the transcendental subjectivity. At the same time, the subject of this subjectivity is to be stripped of his abstractness and seen, à la Heidegger, in the full concreteness of his existence. In this way phenomenology is to become metaphysics as knowledge of the absolute. It is in the last two essays that we find a somewhat fuller view of Landgrebe's phenomenology as metaphysics.

### IV

# METAPHYSICS AS KNOWLEDGE OF THE ABSOLUTE

In "The Problem of an Absolute Knowledge" the Parmenidean motive of the identity of thinking and being is sketched in its Greek beginnings, followed through its Christian complications to the Kantian skepsis, and finally seen reestablished in the Hegelian Logic where the absolute comes dialectically into being by knowing itself, and knows itself by coming into being. The road of metaphysics from Parmenides to Hegel begins with the nous as absolute substance and ends with the spirit as absolute subjectivity. In all its stages, metaphysics is the quest for the absolute, for an absolute knowledge of the absolute, where "absolute knowledge" means "identity of knowing and what is known," and the absolute that is known may mean Being, or God, or the Ding-an-sich. This rediscovery of the hidden core of metaphysics in its various historical shapes is conditioned by, and in turn conditions the situation in which contemporary philosophy finds itself. To have no metaphysics is a symptom of the bottomlessness of modern life. Philosophy, having been robbed of its quest for the absolute and absolute knowledge by positivism, must become metaphysical again "if she ever again wants to be on firm soil" (p. 144).

As to our own epoch, Landgrebe, fortified by Heidegger's turn to an analysis of human existence, states that it must abide by the result that his own sketch of the history of metaphysics endeavoured to bring before us, namely that the absolute can only be found in subjectivity. It is in the direction of subjectivity that philosophical thinking must find "the ultimate ground and origin of Being" (p. 141) and search for the answer to its eternal question: "Why is there anything rather than nothing?" (p. 141). But "who is this subjectivity in which the absolute shall unveil itself for itself?" (p. 144). The feeling of our epoch revolts against the Hegelian abstract conception of the subject as merely thinking subject. The depth of subjectivity is inexhaustible by the logos. Philosophy must

never cease trying to "raise the profundity of experience (Erlebnis) into knowledge and thus to make knowledge absolute" (p. 146). "Knowledge is absolute in letting man see the fact that he in his existence is posited in the instant in which, through his action, it will be decided whether the realization of the absolute is achieved or missed" (p. 145).

Landgrebe begins his last essay, "Phenomenological Analysis of Consciousness and Metaphysics," with a quotation from Husserl, which is like a cold shower to dispel the hangover after the preceding orgies: "Depth of meaning (*Tiefsinn*) is an indication of the chaos that true science wants to change into a cosmos, into a simple, completely clear, rational order." What order does Landgrebe succeed in finding?

True metaphysics is one in which the transcending of human existence becomes explicit. By transcendence is meant here, not the transcendence of Being over beings which the scholastics had in mind when they called the determinations of Being transcendentalia, but the transcendence of human existence, "that essential feature of man by virtue of which he can find the basis of his existence only in fastening himself to the totality of the known Being, and by virtue of which knowledge of beings becomes possible" (p. 157). If transcendence is the essence of man, and if metaphysics is the explicit execution of this transcendence, then the breakdown of metaphysics is ultimately responsible for the breakdown of human essence, and the task of a renewal of metaphysics is the task of a renewal of human essence.

If all this is still extremely vague, with its talk about Fate and the Bottomless, Essence and Bindung, the one thing that becomes clear is Landgrebe's effort to remind us that the idea of knowledge as a tool by which to master reality is a pragmatic-positivistic substitution for what he considers to have been the more or less hidden ideal of metaphysical knowledge from Parmenides to Augustine: an attitude of man with respect to the wholeness of Being, an attitude that is carried by the totality of human existence (p. 156). And though even here such concepts as totality of Being and

totality of human existence remain undefined, the more benevolent among his readers will probably detect in such statements the birth pangs of a new self-conception of man, a de-intellectualization of the animal rationale, which is not necessarily irrational and romantic — although this danger is ever present — but rather meta-rational and humanistic.

Metaphysics, then, has to do with Being over and against beings and with transcendence as that feature of human existence in which Being is known. On the other hand, metaphysics was said to be absolute knowledge, or knowledge of the absolute. Bringing these two descriptions of metaphysics together, we see that the absolute is Being, and that absolute knowledge must be transcendence itself. Although knowledge of the absolute and absolute knowledge seem to be the same, there is at least a difference in rank between them. Being itself is what it is only in our existential openness to it, and therefore it is this existential openness, this transcendence, this absolute knowledge which to make explicit is the first task of metaphysics. In other words, and in harmony with what Landgrebe had formulated as the main result of the history of metaphysics, the first absolute is subjectivity. This is the Landgrebean version of Heidegger's existential analysis being the fundamental ontology.

At the same time, however, that Landgrebe injects into Heidegger the honey that he had extracted from the faded flowers of metaphysics, the sweet honey of absolute knowledge, he also injects a bitter drop of religion. Somehow or other, the absolute, which first was Being and then became transcendence, turns into God (p. 159). But the climax of complications is reached when we observe that the needle with which absolute knowledge and God are injected into Heidegger, is nothing else but Husserl's doctrine of phenomenological reductions.

<sup>&</sup>lt;sup>4</sup> This religious turn of the German brand of existentialism can also be observed in Kuhn, Löwith and others. As to Heidegger himself, see my essay, "Logical Positivism and Existentialism," to be published soon in *Philosophy of Science*.

Seen from the outside, the phenomenological reduction consists in the methodical application of the Cartesian doubt to the general thesis of our natural world attitude, the thesis that the world is real. Thus beings are reduced to meanings. and these meanings are philosophically understood if we investigate in universal reflective attitude the activities which produced them. Hence, the phenomenological reduction looks like an improved and systematized Cartesian epistemology. This, Landgrebe believes, is too superficial a view, one which has marred Heidegger's evaluation of Husserl. To Landgrebe. the phenomenological reduction is much more than a mere mental technique, much more than a kind of epistemological yoga. He wants to see in it the most radical expression of the bottomlessness of modern existence. "The breakdown of the soil of an all-embracing certainty concerning the totality of Beings," this complete bottomlessness of modern man forms the historical situation in which alone "the possibility of the nothingness of world" (p. 165) could have been seen. But the phenomenological reduction is at the same time the final defeat of this bottomlessness; it is the gaining of a new "support in the wholeness of Being . . . " the beginning of a new metaphysics. To be sure, "the road to the absolute can be found nowhere else than in the depth of subjectivity ... But by virtue of its method, phenomenology makes it possible to understand subjectivity in all its power in such a way that the being thrown back upon man in his radical solitude does not mean, as it does with Heidegger, to be satisfied with the facticity of finite existence, but means that this facticity of one's own subjectivity, of this residue of world annihilation, shows itself to be the entrance to metaphysics, to the philosophical knowledge of the absolute . . .; wherewith philosophical knowledge receives back its original function of binding the finite human subjectivity into the wholeness of absolute Being" (pp. 166 seq.).

It would indeed be interesting to follow in detail Landgrebe's interpretation of the various steps that make up Husserl's phenomenological reduction. I must limit myself to its most important point, which is the overcoming of what seems to be the insuperable solipsism implied in the reduction to the ego cogito. Landgrebe evokes the "intuitionistic basic principle of phenomenology": every evidence is to be accepted in precisely the way in which it shows itself. The result of Landgrebe's rather sketchy analysis is that "the evidence of the Ego is in its own meaning possible only on the ground of the evidence of the Thou" (p. 177). "The subject-relatedness of world as intentional world is... not relatedness to me as the solus ipse, but to inter-subjectivity... The certainty of the Thou, of intersubjectivity does not fall outside, but remains within the sphere gained by the reduction" (p. 180).

This very Thou is then said, surprisingly enough, to reveal itself to the finite Ego as the true absolute, the final object of metaphysical knowledge. I say "surprisingly enough" because the Thou is as finite a Thou as I am a finite Ego. How, we must ask ourselves, can the finite Thou reveal itself as the true absolute? Landgrebe answers this question with what he calls his theory of the transcendental appearance (Schein) (pp. 187 seq.). I am afraid that I have not been able fully to understand the intricacies of this strange theory. Here is what he seems to be saying:

The transcendental dialectic consists in the distinction of mundane and absolute subjectivity which are yet one. Phenomenological analysis begins with a particular philosophizing Ego, man among other men, all of them living in the same intersubjective world. This point of departure imposes its mundane character even on the ultimate stage towards which the phenomenological reductions carry us, the absolute subjectivity as the origin of world itself. The same transcendental dialectic can be found in the Thou. As a matter of fact, the transcendental dialectic of the Thou is prior to that of the Ego, in the sense, namely, that the Ego is an Ego only by virtue of his openness to the Thou. The mundane Thou, the fellow man, becomes, through the phenomenological reductions, absolute subjectivity and yet does not cease being mundane. However, the mundane Thou and the mundane Ego are not to be con-

ceived as mere appearances in which the absolute manifests itself. "Absolute subjectivity has its reality only in the concrete, temporal existence, but in this concrete existence absolute subjectivity is neither merely this man in the world with his consciousness, nor the absolute itself, but the point in which the absolute, the transcendence realizes itself, and this means that it exists for itself by knowing (vernehmen) itself" (p. 189). This, then, is Landgrebe's variation of the old metaphysical motive of the identity of thought and being. He quotes Hegel: "the absolute idea alone is Being, imperishable life, truth that knows itself, and is all truth." In his own terms: "God — i.e., absolute subjectivity — exists in the absolute instantaneous existence of man, and is nowhere else, and is nothing but this" (p. 192).

Yet, if philosophy is metaphysics, and if metaphysics is knowledge of the absolute, and if the absolute is the Thou of the divine appeal, what remains to be said by metaphysics? Must it not limit itself to the kind of orphic mumblings that originate on the lonely mountains of Todtnauberg, and like tremors shake the gregarious valleys where the Master's followers, sick of the Nothing, build their golden calfs to the Absolute? "The adequate expression of God ... which instantaneous existence can give would be nothing but the particular instantaneous existence itself insofar as it is fulfilled existence, insofar as it follows the appeal of the Thou in the instant. Thus the absolute, God, is inexpressible; but inexpressible does not mean inaccessible. God is manifest in immediate existence. The inexpressibility only means that mere thinking cannot take over existing. However, existing is not blind to itself in its essence. It is not some post festum knowledge that would bring about its always inadequate clarification. As fulfilled existence it has in itself certainty and truth: the ultimate possible ground of all certainty and truth is in the totality of fulfilled existence" (p. 196).

WALTER CERF

Brooklyn College.



#### CARNAP ON PROBABILITY

Carnap presents his theory of induction in a two-volume encyclopedic work.¹ Some of his views have appeared in articles before, but these two volumes form a complete unit. Not only does he give a complete theory, but he covers the prerequisites in a chapter on deductive logic, and develops a highly concise and elegant notation. This review will cover topics of special interest to the readers of this journal; some more technical points will be discussed in a review in *The Journal of Symbolic Logic*.² The reader interested in following up some of the references will find a complete bibliography at the end of Carnap's book. The review covers volume one; the second volume is in preparation.

Reading of this complex subject-matter is considerably simplified by a variety of devices: Brief summaries at the beginning of chapters and sections; theorems, definitions, etc. are clearly marked for easy cross-reference, the most important ones being specially marked by "+" signs. For a brief survey, the reader can read the summaries and the marked theorems and definitions.

There is a very interesting chapter on the problem of explication, whose main purpose is to clarify this problem. Explication is the process of making precise vague, everyday concepts. Carnap states his own views as to the relative importance of intuitive and formal considerations. He discusses three types of explicata (the explicandum is the vague concept, the explicatum is the precisely defined counterpart): classificatory, comparative, and quantitative concepts. The problem of this book is to find a quantitative explicatum for the vague intuitive concept of degree of confirmation.

In order to avoid great technical difficulties, the discussion of all problems is restricted to a primitive type of language.

<sup>&</sup>lt;sup>1</sup> Logical Foundations of Probability, by Rudolf Carnap. Chicago: The University of Chicago Press, 1950, xvii + 607 pp.

<sup>&</sup>lt;sup>2</sup> September 1951 (vol. 16, No. 3), pp. 205-207.

though the author suggests several methods for extending the results.

The basic thesis expounded by Carnap is that the term "probability" is ambiguous; it sometimes refers to the frequency concept of probability, and at other times it is used in the sense of degree of confirmation. This ambiguity has, according to Carnap, muddled the problem of explication. So the author proposes to clarify the difference, to explicate degree of confirmation, and to base a theory of induction (or inductive logic) on this concept.

Let us first examine how Carnap differentiates between the two concepts. He divides authors on the subject of probability into three groups: (1) The classical writers like Bernoulli and Laplace, (2) modern writers like Keynes and Jeffreys, and (3) the school of von Mises and Reichenbach. Of these the last group deals with the frequency concept of probability (which we shall abbreviate pr) and all the others deal with degree of confirmation (abbreviated by c). But most of the authors do not even realize that there are two concepts. For example, von Mises rejects Keynes' theory, not recognizing the fact that Keynes is explicating a different concept. Carnap compares this to the historic dispute concerning "living force"; by this term Descartes meant momentum, Leibniz meant kinetic energy. (This is one of dozens of interesting historical references.)

There are great similarities between the two concepts (which is the cause of the confusion), but also very fundamental differences. Both are numerical functions of two variables with values between 0 and 1. There are several probability axioms satisfied by both concepts. Both are objective, and both play important roles in science. But a c-statement is analytic, while pr-statements are factual. Both are governed by purely mathematical laws; but while these suffice to determine c, we need some factual information (which is often inaccessible) to know the pr-value. c often has events as arguments, while pr may apply to kinds (intensionally defined classes) of events. Since authors

often fail to distinguish individual events from kinds of events, this too adds to the confusion.

Let us illustrate these points in specific examples. The evidence e states that we drew balls out of an urn (always replacing them) and of the first ten balls drawn six were white, two yellow, one red, and one orange. Let h be the hypothesis that the next ball will be white. c(h,e) is a number determined by the laws of inductive logic. On the other hand if b is the class of future draws, and a those future draws in which a white ball is drawn, then pr(a,b) is the relative frequency of white balls in the long run. pr(a,b) may equal 0.6 but this fact cannot be inferred from the value of c(h,e), since an empirical fact cannot be inferred from purely logical premises. However, c is our estimate of pr on the basis of our evidence. If we knew the value of pr, for example if our evidence told us the number and color of the balls in the urn and that they are drawn at random, then we could deduce that c = pr, since the estimate would then be the actual value; but one cannot deduce the actual frequency from an estimate. Another good way to see the difference is to note that pr(a,b) is not affected by the outcome of the first ten draws, but c(h,e) depends most vitally on it.

Let us take another example, this time from primitive science. Let b be the class of days (say for the next billion years), a of those days in which the sun rises. Then "pr(a,b) = 1" is synonymous with the natural law "the sun will rise every day for the next billion years." Now let e be our total empirical knowledge, and e the hypothesis stating that the sun will rise every day for the next billion years. Then c(h,e) is the measure of how certain we are of this law, or rather how certain a truly rational being would be if he had our background. So c(h,e) is some number close to 1, but less than it. Say c(h,e) = 0.99, expressing that we are practically certain that the law is true. If the sun does not rise tomorrow, it will prove that pr(a,b) was less than 1, but c(h,e) still is the same, only e no longer represents our total knowledge. We now know

that h is false, so if e' is our total knowledge tomorrow, c(h,e')=0. It is not to be supposed, however, that c is a subjective concept (the heat you feel is subjective, but the temperature is objective). Carnap discusses the objectivity of this concept at length, (Compare this with Russell's most interesting discussion in Human Knowledge, Its Scope and Limitations. He calls c, degree of credibility.)

One difficulty overcome by this distinction is the infinite hierarchy of probabilities in Reichenbach's theory. When we ask "What is the probability of this probability?" the first "probability" denotes c, the second denotes pr. We cannot ask for the degree of confirmation of a degree of confirmation, since a c-statement is analytic if true. So we get only two levels instead of an infinite hierarchy. Specifically, Reichenbach's posits are estimates of relative frequency, hence they are c-statements.

Carnap gives Reichenbach credit for realizing the distinction between c and pr, but Reichenbach tries to explicate degree of confirmation also as a relative frequency. This, according to Carnap, is incorrect. Furthermore he denies Reichenbach's contention that probability logic is infinite-valued. The reviewer feels that Carnap is right on both counts. The point about infinite-valued logic has been criticized in a recent review in The Journal of Symbolic Logic; it seems perfectly clear that the theories of both c and pr can be formulated easily in a system of two-valued logic.

Making this distinction between the two uses of the word "probability" perfectly clear is Carnap's greatest contribution to the theory of induction.

The second concept pr is mentioned only to distinguish it from c. This book deals primarily with the latter, degree of confirmation. Carnap gives different intuitive description for c: degree of evidential support, fair betting quotient, and estimate of relative frequency in the long run (estimate of pr). It is worthwhile illustrating different uses of c in an example. Let e again state that six out of ten balls drawn from an urn were

white, and suppose that someone asserts that "the probability that the eleventh ball will be white is 0.6." How are we to interpret this? Since it applies to a single event, it must be a c-statement. Most likely it asserts that c ("the eleventh ball will be white", e) = 0.6. But it could also mean that c ("pr (white balls drawn, all balls drawn) = 0.6", e) is close to one or at least very high. And it means that a 6:4 bet is a fair bet.

Carnap lists the five main types of inference (see § 44), and requires that a satisfactory theory of induction should justify these inferences. He justifies one type, the direct inference, in this volume, and will do the rest in the second volume after he completes his definition of the c-explicatum. Thus c is to serve as a foundation for inductive theory; it provides a logical foundation for statistics, and also a guide to everyday decisions.

There is a careful distinction made between the theoretical problems of explication and the problem of application. For example, in the definition we must allow any (non-contradictory) evidence, but in applications e must be our total knowledge. Or at least e should be all the available relevant knowledge. That raises the problem of what pieces of evidence are relevant. Carnap gives the very intuitive definition that a piece of evidence is irrelevant only if it does not change the value of c. He devotes a whole chapter (chapter VI) to the problem of relevance. His discussion of various relevance situations is a good example of a careful analysis which forces us to revise our intuitive judgments.

Another problem of application is the problem of using c as a guide to everyday decisions. Carnap discusses several proposals, and finally adopts the rule: maximize the estimated utility. This presupposes some measure of the utility of various events (for example, the utility of \$10,000,000 is not ten times as great as that of \$1,000,000 - even aside from the income tax), and a quantitative c-function. When we are confronted with a choice, we estimate the probability of various outcomes of an alternative action, each outcome having a certain utility, and thus we get an estimate of utility for each alternative.

(E.g., if a certain action might have one of two outcomes, with c-values of  $\frac{2}{3}$  and  $\frac{1}{3}$ , and utilities of 30 and 15 units respectively, then the estimated utility of this action is  $\frac{2}{3}$  times 30 plus  $\frac{1}{3}$  times 15, or 25 units.) The rule directs us to choose the alternative with largest estimated utility. This seems to be a very good rule, but it presupposes the solution of two very difficult problems, measuring utility and defining c for a language strong enough for everyday use.

In summary, Carnap poses himself a two-fold problem of explication: (1) Measuring the various factors influencing c (see § 46), and (2) finding a numerical function of these various parameters. This seems to be an excellent program, but surprisingly enough Carnap does not follow his own outline. He tries to solve (2) directly, apparently hoping to solve (1) implicitly. This may have been an unfortunate decision.

The program he does adopt is to lay down only the non-controversial foundations for inductive logic in this book, while in the second volume a specific c-function will be chosen and the theory will be completed. Carnap calls upon the reader to judge the adequacy of the explicatum by the results it gives in specific instances. (We shall discuss this approach at a later point.)

If we grant to Carnap that his analysis of the problem is correct, and in the opinion of the reviewer it is, we must next examine the conditions which in the author's opinion all c-definitions must satisfy. If these are accepted, the rest of the book follows analytically. In order to simplify the discussion, let us restrict ourselves to a fixed finite language (for which the theory is best suited). For such a language we require that c(h,e) be an extensionally defined function (i.e., equivalent statements give equal values) of two well-formed formulas — of which e must be non-contradictory, and which satisfies five conditions:

- 1.  $c(h\mathcal{E}j.e) = c(h.e) \times c(j.e\mathcal{E}h)$
- 2. If  $(e\mathcal{E}h\mathcal{E}j)$  is contradictory, then c(hvj.e) = c(h.e) + c(j.e)

- 3. If h is analytic, c(h,e) = 1
- 4. If Z describes a logically possible world (is a state-description) and e is analytic, then c(Z,e) > 0.
- 5. If Z and Z' describe isomorphic worlds (state-descriptions differing only by an interchange of individual names), and e is analytic, then c(Z,e) = c(Z',e).

The last one is the symmetry condition; it asserts that structurally similar worlds are a priori equally likely. The fourth condition assures that only contradictory hypotheses are a priori excluded. Both these conditions aim at eliminating a priorism, and (if we admit analytic evidences at all) seem to be necessary conditions. Condition 3 is a convention fixing the maximum value.

Conditions 1 and 2 are listed by Carnap as "conventions of adequacy." They are conditions of adequacy, but they are certainly more than conventions. It is important to note that (except for the anti a priorism conditions 4, 5) Carnap's conditions are equivalent to the ones that hold for the frequency concept (see Reichenbach). If the difference between c and pr is as fundamental as Carnap shows it is, then it is very odd that all pr axioms hold for c. In view of the fact that these conditions contain the heart of the book, it is very strange that Carnap justifies them only by one example each — both of which serve to illustrate rather than to justify. This is in unfortunate contrast to the detailed rigor of the rest of the treatise.

Carnap thus maintains that only functions satisfying the stated conditions, or symmetric (regular) c-functions, are possible explicata for degree of confirmation. He develops a large body of theorems about these functions, which any explicatum must satisfy. That this wealth of results is so great is not too surprising when we consider that all axioms of the mathematical theory of probability are included among Carnap's "conventions."

As further proof that the symmetric c-functions are the right class from which to choose the final c, the author goes into

a detailed study of other authors on the same subject. His conclusion is that all quantitative conditions laid down in other books are satisfied by his functions; hence the conditions laid down are a sharpening of previous ones.

This conclusion is only partially justified because of three facts: (1) Only quantitative conditions are considered, thus ignoring the major part of a theory like Keynes' whose strongest conditions are comparative. (2) The principle of indifference is summarily dismissed as self-contradictory. Yet it is clear that any adequate definition must incorporate a weakened form of the principle. E.g., condition 5 mentioned above is a special case. (3) It is not (conversely) true that all five conditions hold for the functions of the other authors. So the class of symmetric c-functions may be too narrow! Indeed this seems to be the case.

Let us consider condition 1, which is the strongest single requirement. It is an immediate consequence of this condition that c(h,e) can be expressed as a ratio of a priori probabilities. Let  $c_o(h)$  denote c(h,t), where t is analytic, then

$$c(h,e) = \frac{c_o(h\&e)}{c_o(e)}$$

Thus the whole problem of confirmation is reduced to the finding of the  $c_0$ -function. This fact is counter-intuitive.

It is interesting to examine Jeffreys' theory, because Carnap mentions him as one of the men definitely working on c. In the first edition (1939) of his book on probability theory he omits condition 1 from among his axioms. There is good reason for this. Jeffreys' axioms all concern the comparative concept better confirmed, and numerical values are introduced by conventions. However, condition 1 is a numerical condition, but not a mere convention. So Jeffreys gives a proof of this condition. Unfortunately the proof is not correct — it involves a totally unjustified assumption. Jeffreys became aware of this later, and in the 1948 edition he mentions this fact and then brings in condition 1 as a new axiom in order to enable us to get the

result without the assumption — and incidentally violates his program of having only comparative axioms.

The approach that was closest to Carnap's was that of Helmer, Hempel, and Oppenheim (Carnap will discuss this in volume two). And again they differ from Carnap by rejecting condition 1. Is there any particular reason why this condition should be distinguished from the others? In the reviewer's opinion there is a very fundamental reason: condition 1 holds for pr, but does not hold for c. (In view of the fact that there is a fundamental difference between the two concepts, it is not at all surprising that there should be a formal condition true for one but false for the other.) A single example will demonstrate this.

Let our evidence e state that we have an urn in which we have white and black balls; we draw one at random then replace it, draw again. Let h state that the first hundred balls drawn will be white. j states that the 101st ball will be white. Condition 1 says

(a) 
$$c(h\mathcal{E}j,e) = c(h,e) \times c(j,h\mathcal{E}e)$$
  
or analogously for  $pr$ 

(b) 
$$pr(h\&j.e) = pr(h.e) \times pr(j.h\&e)$$

Let us suppose that there are w white and b black balls. Then the pr of drawing a white ball is  $r=\frac{w}{w+b}$ . So  $pr(h,e)=r^{100}$ ,  $pr(h\mathcal{E}j,e)=r^{101}$ , and since the probability of drawing a white ball depends only on how many white balls there are, not on the past history of drawing,  $pr(j,h\mathcal{E}e)=pr(j,e)=r$ . So part (b) is correct (at least in this case). It should be noted, however, that we have no way of knowing what r is. As Carnap has so excellently pointed out, in degree of confirmation we work not with actual frequencies but with our estimate of these frequencies. So c ("the next ball will be white," e) = our estimate of r. This number must be  $\frac{1}{2}$ , since the evidence is symmetric with respect to "white" and "black." Since this holds for every draw, as long as our evidence is e, we must make  $c(h,e)=(\frac{1}{2})^{100}$ ,  $c(h\mathcal{E}j,e)=(\frac{1}{2})^{101}$ .

So if (a) were correct, c(j,h&e) should be  $\frac{1}{2}$ . But if h is part of our evidence, if we know that the first hundred draws were all white, then our estimate of r will certainly be greater than  $\frac{1}{2}$ . So condition 1, in this example, holds for pr but not for c; the reason being that actual frequency is not changed by the new evidence h, but our estimate of this frequency is definitely changed. And if there is a single example in which condition 1 is false, then it cannot be a general condition of adequacy.

There is a purely formal reason too why we could have suspected that pr and c would differ as to condition 1. It is the only condition in which values are compared for different evidences. So this is the only one in which learning from experience enters — a principle affecting c, but not pr.

It is the reviewer's opinion that only those theorems of Carnap are acceptable which do not use condition 1. It could, however, be replaced by some of its consequences which are valid for c. For example, it and the symmetry condition together imply a stronger symmetry condition:

5'. If h' is obtained from h by a permutation of individual names, and e' from e by the same permutation, then c(h',e') = c(h,e).

If we drop 1, but replace 5 by the stronger 5', we can still prove many of the book's most interesting theorems. For example, the only inductive inference that is completely justifiable by means of the five conditions alone is the direct inference (from all things to a sample). This result can be obtained from the weakened axiom system as well. A second fundamental result is T104-2c. It states that if each statement in a set has the same c-value, then c is the estimate of what fraction of them is true. (E.g., if each of ten statements has c=0.6 on the basis of some evidence, then on this evidence we should estimate that just six of the ten statements are true.) This result is very important for the interpretation and application of c, and it too follows from the weaker axioms.

Even with condition 1, the class of functions is too wide. It includes the special case of the so-called Wittgenstein function, which assigns equal  $c_0$ -values to all state-descriptions, and forbids most customary inductive procedures. So Carnap has to chose a particular function,  $c^*$ , in a manner he admits is quite arbitrary. This function is mentioned in the appendix, but will not be discussed in detail until the second volume. (In volume two he will complete the theory, compare various types of explicata, and discuss the problems involved in extending to stronger languages.) So a detailed criticism must be postponed; but we can note that  $c^*$  satisfies the controversial condition 1, and we can even question the method of arriving at  $c^*$ .

The justification of our explicatum should be that it is the only one satisfying certain intuitive conditions of adequacy; it should not merely be the negative fact that the examples so far calculated are not clearly counter-intuitive. This points the way for future research. Start with the weakened set of conditions (which is the part of Carnap's work having general validity), and add new requirements until a unique c-function emerges, or at least until the remaining possibilities are intuitively equally good (and select the simplest one among them). It is probably necessary that the additional conditions analyze the different factors influencing c— evidential support, variety and reliability of evidence, and perhaps the simplicity of the hypothesis.

This approach would lead to a c-explicatum different from Carnap's c\*. But many of his results would still be correct. For example, he discusses important related concepts, like relevant, confirming, more confirming, and various problems of estimation. All of these can be adapted to the new c-function. As a matter of fact the best parts of these chapters apply to any c-function. Then we must try to extend all results to practical languages, which may be a long and difficult task.

Whatever our final judgment may be as to the detailed results, however, it is certain that all future progress in the problem of finding an adequate inductive theory must be based upon Carnap's monumental book.

JOHN G. KEMENY

Princeton University.

#### **Notes and Observations**

### BEING, WORLD AND UNDERSTANDING:

A COMMENTARY ON HEIDEGGER \*

1

Martin Heidegger's Sein und Zeit tries to work out an exposition of the existential structure of man as Da-sein.1 The essential characteristics which reveal this structure Heidegger calls "existentialia." 2 History, however, can tell us that man's ideas of his ground-structure change. That is to say, the way Heidegger exhibits human existence in Sein und Zeit is not the way man, dominated by metaphysics, has seen himself in medieval times, for example, or sees himself in the machine-age; classical thought furnishes an origin for the explicit theory of phenomenological description (Beschreibungslehre) of Sein und Zeit. This is explained in Heidegger's essay "Die Zeit des Weltbildes" (Holzwege, p. 81), which shows to what extent "man" has become "the central correlation point (Bezugsmitte) of the Seiende 3 as such," and that this has been made possible only because the "conception of the Seiende has completely changed" (Holzwege, p. 81). In a note to "Die Zeit des Weltbildes" (Holzwege, p. 92) Heidegger emphasizes: "The worldconcept as it is developed in Sein und Zeit can only be understood within the framework of the inquiry into the Da-sein. an inquiry which itself remains within the basic inquiry into the meaning of Being (not of the Seiende)." Sein und Zeit never interprets man as he understands himself in the machineage, for Heidegger's concept of the world and that of the machine-age are essentially contradictory. Sein und Zeit rather

<sup>\*</sup> Translated by Dr. Susanna Jungbauer.

<sup>&</sup>lt;sup>1</sup> Da-sein: "being-there." Dasein in common language means human life, human existence. In Heidegger it bears an ontological meaning — Man is the Da (the "there") of the Sein (of "Being"). — Tr.

<sup>&</sup>lt;sup>2</sup> Existentialia: the ontological characteristics of Da-sein in analogy to the categories on the ontic or metaphysical level. — Tr

<sup>&</sup>lt;sup>3</sup> Seiende: "what is." The Seiende belongs to the "ontic" (metaphysical) realm, to the world of objects, whereas Sein, is "ontological." — Tr.

describes the ground-structure of man as he himself does not yet see it. Heidegger, in Sein und Zeit, sketches man as he does not yet understand himself. But this statement too is incorrectly expressed, for it is not the case that "Heidegger," as subject, sketches a "picture" of future man but rather Being, ruling in man, comprehends itself in the "key-being," man, in a new way which unveils Being.

Our century thinks scientifically. Nothing would be more plausible than that it has the same relation to the world as does Sein und Zeit. This, however, is not the case. For Heidegger, Science (Wissenschaft) and Technology are essential characteristics of our time. Both are rooted in man insofar as he is a "Will to Will." Scientific man is man as subject. As such he does not wish to see the world the way it appears by itself but rather as a field that may be tilled by him and is preordained for him and his activity. The world as the object of action does not merely come to man as a legacy; instead he violently grasps it and makes it his hunting ground. "Man becomes that Seiende, on which is based all Seiende in the manner of its Being and its Truth" (Holzwege, p. 87). Man of the machine-age does not allow for a world "where Being is (west) as Being." 4 The Subject "sets" its world and therefore has a Welt-bild and Welt-anschauungen, all of these being bifurcations indicating the separation of subject and world. A uniform world is replaced by Ego over against World. In this kind of "world" man makes God in his own image by setting the "world" as the stage for his Welt-anschauung, one which aims at utility and plasticity. Man is the director staging the world of his idea (Vorstellungswelt). As the objects which are handled have properties which reflect back on the producer, the directing is all the more dangerous. He who in everything that he thinks and does is staging himself might become the victim of his own production; the

<sup>4</sup> West: third person singular of the verb "wesen," which is not used in German. The German phrase: "... sein Wesen treiben..." comes closest to the meaning of Heidegger's "west": ... to carry on one's essential being. — Tr.

<sup>5</sup> Vorstellungswelt: "Vorstellung" is a theatrical performance and also means "idea," "representation." Here it is used in a double sense. — Tr.

world of the calculating man has the character of its producer. "The calculating mind, adapting itself, invents 'values' (of civilization and nation). Value is the transformation of the Essence of Essence (i.e., of the Seiendheit) into the quantitative and the gigantic." <sup>6</sup> In Holzwege Heidegger shows that the gigantic is a consequence of the way the subject places himself in the world. The world does not appear as what it is (world as phenomenon), but as what man makes of it (world as idea). <sup>7</sup> The world of the machine-age is a world-less world and the "world" as it is described in Sein und Zeit and more so in the essay "Vom Wesen des Grundes" does not appear in it. <sup>8</sup>

The world of Sein und Zeit is closer to the world of poetry, whereas the world of the machine-age is most anti-poetic; the latter understands poetry so little that it has made of poetry only what Heidegger calls "cultural values." "With different ways of representing and different manners of establishing Seiende, modern science finds itself in the basic trait of that truth, according to which all Seiende is characterized by the 'Will to Will,' the prototype of which, 'the Will to Power,' originated all appearance." Actuality here means an arsenal of objects, a "manufactured" world.

The world shows itself in intercourse with things which are objects of concern (besorgten Dinge). Things impose themselves upon man as that-which-is-available. Only when man disregards their usefulness and adopts a mere observing attitude (Hinschauen,  $\theta \epsilon o \rho \epsilon i \nu$ ) do things appear as simply that-which-is-existent (Vorhandenes), as mere things. Things stand in an all-embracing context of meaning: the "world" which reveals itself to man in the understanding. But it is not the Ego as subject that understands the external world; it is rather the Being-in-the-world which is inseparable from the Da-sein. The

<sup>6</sup> From Ewige Wiederkehr des Gleichen und der Wille zur Macht by Heidegger (unpublished).

<sup>7 &</sup>quot;Welt als Bild": literally "world as picture." It retains much of this connotation in Heidegger. "Weltbild": man's idea, the world or the universe. — Tr.

<sup>8</sup> Insofar as being-in-the-world belongs to the structure of Da-sein, the machine-age also has "world," but as "world of idea" of the subject.

<sup>9</sup> From the postscript to Was ist Metaphysik? (1949).

spatiality of the *Da-sein* is disclosed together with the world. The *Da* for which the world is disclosed thus carries remoteness and orientation in itself. Therefore Heidegger in his lecture in Bremen <sup>10</sup> was able to reveal that the overcoming of distance through technical achievements is an essential feature of man in the machine-age, and results in the loss of "remoteness" and therefore also the loss of genuine nearness. "*Da-sein* in its very essence is ent-fernend, <sup>11</sup> as the Seinde that it is lets Seiende enter into proximity" (Sein und Zeit, p. 105). In this connection concepts like nearness or remoteness lose their ordinary mathematical function and become essential features of existence, i.e., existentialia. When it is said in Sein und Zeit that "in Da-sein there is an essential tendency towards nearness" this does not mean nearness in the sense of spatial location. The poets are the only ones who still know what nearness means.

"The essence of the world has not yet been thought." Sein und Zeit offers the earliest formal indication, in Heidegger's works, 12 of the new meaning of world. The analysis of Space is left out purposely, since Space in Heidegger is contained in the disclosure of world, which is the final meaning of Da-sein. This disclosure is achieved by the understanding which "always concerns the whole ground-structure of Being-in-the-world" (Sein und Zeit, p. 144). This Being-in-the-world is not understood by an "ego" but the understanding of the world is coevally projected there with the Da-sein, wherefore Heidegger calls the understanding of one's own potentiality of being (Seinkönnen) "Entwurf." 13 With understanding, the scope of

<sup>&</sup>lt;sup>10</sup> "Insight Into What Is," repeated and supplemented in a lecture at Bühlerhöhe, 1950.

<sup>11</sup> Ent-fernend: to do away with remoteness, "Ent-" has a deprivative meaning. In common usage Entfernung means distance or removal — Tr.

<sup>12</sup> In his lecture at Bühlerhöhe in March 1950 Heidegger stated for the first time that the concept "world" has been developed far beyond that in Sein und Zeit, without however contradicting the first formal exposition.

<sup>13</sup> Entwurf: in common usage, "sketch, plan, project," etc. Here rather Ent-wurf, i.e., un-throwing: that which the "Seinkönnen" sets against the fact of being "thrown" (geworfen) into existence. Ent-wurf implies an element of freedom.

our possibilities is disclosed. All this is one sally (Wurf), one unity, one record — no acts side by side but one "Da." To this Da also belongs the fact that we are not alone but exist simultaneously with our fellowmen who also have an understanding of Being. Being-together (Mitsein) is an essential characteristic of our existence and therefore also an existentialium. This being-together is understood by man in a way equally primitive with that in which he understands the exterior world: existing as human beings we "have" the fellow-being as we "have" being-in-the-world. Being together, however, is different from being-in-the-world, since we are together with beings of the same kind. This leads us into the realm of society.

Sein und Zeit gives, in the disclosure of the "world" which man affirms and accepts, a predominant position to intercourse with the things of the world, the things close at hand. Man first of all lives with the things for which he is concerned, things for which the meaning of Da-Sein is revealed as concern (Sorge).

Among the constitutive elements of concern are existentiality (the existentialia), the factuality of our Da-sein and ultimate decay. For as soon as he exists, man is not primarily with himself alone but is first of all with others as he is also first of all with things. But he is not with certain others, not with, e.g., a friend, but with anonymous others. Man is Nobody (Sein und Zeit, p. 28) or Everyman. Gossip, curiosity, and ambiguity characterize the way in which Da-sein is its everyday Da, the disclosedness (Erschlossenheit) of being-in-the World (Sein und Zeit, p. 175). Life is easier for anonymous man because one may rely on the other, one is secure in the other and finally, nobody is responsible. Man as man, therefore, takes from the Da-sein the burden of being a self and hides the true Self.

The thoroughly mechanized world has re-arranged Nature according to its adaptability and usefulness. Heidegger calls

<sup>&</sup>lt;sup>14</sup> Factuality (Faktizität): the irrevocable fact of the Da in human existence. Decay (Verfallenheit): the existential character of the Da-sein in falling prey to the anonymous many, the public, and to the things in everyday life. — Tr.

the whole mosaic of this world Gestell (framework). The more uniform the single piece the more useful is it as a piece. It has been mentioned previously that the point of reference for this framework is man dominated by the "Will to Will." In his way man, too, belongs to the setting (Be-stellte). Therefore we find ourselves in a circle which leads from the fragment, man, to the whole framework of the utilitarian mosaic (the empirical world) and again back to man. Man, fixed in the circle, is the subject which has "subjected" man to all what-is (Seiende) and therefore has conjured up objects (as world of ideas and representations). Man cannot escape this circle by taking refuge on an island. Inasmuch as anonymous Man belongs to the nature of man, the question will arise why it is precisely in the mechanical age that "Man" unfolds his full power: is there not the possibility of appealing to the personality of the individual? On the contrary, could it not be the case that the domination of Man originated from the domination of the individual? For the mastery of the masses as well as the mastery of the individual spring from one and the same root: both see the essence of man in unlimited and unconditional subjectivization. Since the Renaissance man has more and more acquired a central position. By ordering his environment and contemporary world according to his purposes, since he presents it to himself and measures it to himself until everything is "set" (gestellt) or has become a setting, he has enforced the Will to Will and with it the full autonomy of man. It is a fundamental thought of Heidegger that scientific success is nothing but the consequence of this "setting" of "World" and that therefore science is and will always be able to produce successful results ad libitum.

It has become a habit nowadays to preach to the anonymous "Man" the return to "God" who as the "creator" of man should stop the madly turning wheel. Heidegger, however, has repeatedly pointed out that the position of man as the central point of reference in the world of science has evolved from medieval thought itself (Die Zeit des Weltbildes, pp. 70, 85).

It has developed out of the reign of metaphysics which first of all has made possible the domination of subjectivism in which the Seiende is a represented object.

#### II

As the Da to which world is disclosed man has three essential features which are equally genuine: Sensitivity. 15 Understanding, 16 and Speech. As the animal that has never swum before can immediately move in the water because swimming has been given to it, man has been given the "understanding," the key, with which to unlock his Da-sein, the understanding of Being. "What we can do in the understanding as an existentialium is know nothing but what is Being in the form of existing" (Sein und Zeit, p. 143). Man does not approach things and fellow-men from without, since they are all already there when he "exists." The "understanding," therefore, is the most important instrument for disclosure, and Heidegger correctly foresaw that his work Sein und Zeit would not be spared the criticism that his thinking went in circles. This is the key to the whole of his thought. In Sein und Zeit Heidegger mentions twice (pp. 153 ff., 314 ff.) the cyclic structure of man. "Seiendes, which as being-in-theworld is concerned with its Being itself, has ontologically a cyclic structure." And indeed here a searchlight which itself belongs to man casts its light on the complex human structure. Or in other words, Existence and Being are presupposed in order to show what Existence and Being are. But we may rightly make the following objection. If the power to reveal, if the "understanding" were not a priori in man there would be no thinking, no philosophizing and no human history. Consequently Heidegger has gone farther in order to "excavate" the "Understanding of Being" with the aid of what we have been given and thereby to gain insights into why we are wrong -

<sup>15</sup> Sensitivity (Befindlichkeit): The aboriginal condition of "tunedness" of the Da-sein, the way it finds itself already there. — Tr.

<sup>16</sup> Understanding: Verstehen (not Verstand!), introduced by Dilthey as one of the most important methods of the Geisteswissenschaften. — Tr.

although "logically" correct - if we maintain that knowledge must not be based upon a vicious circle. For "existential analytics" penetrate into regions which are deeper and more genuine than those where the "Logic of Consequence" is at home. We are standing at the borders of that Western logic which has been and is determining epistemology. There is no treason against "logic" but only an affirmation of the fact that the logic of judgment and syllogism is unable to penetrate into the decisive, existential human realm. When Heidegger demands that man break out of the circle, he means more than just a methodological task. He means no less than that Europe has to get out of Europe, i.e., out of the disastrous circle of her logical systematism if she wants to be saved. For what else is the traditional Europe but the logical scaffold of metaphysics. the "mastery of the Logos," "the ratio which, having become unfathomable, is playing a game of ingenuity in an unsubstantial world" (from a letter, June 16, 1931)? In the last analysis man is Thinking inasmuch as "Being" thinks itself in him (which is also the reason why man has the key to the understanding of Being). Thus if fundamental changes should be noted in thought, men should also experience historical changes. "If in the age of subjectivity in which the essence of technology is rooted, consciousness is confronted with Nature as Being, then Nature is but the Seiende as the object of modern mechanical objectification which affects the substance equally of things and of man" (Holzwege, p. 177). Heidegger, in his treatise on Nietzsche's saying, "God is dead," has pronounced what is happening in the age we are living in. "Perhaps then we may know that neither the political, nor the economical, nor the technological and scientific, not even the metaphysical and religious perspectives are sufficient in order to think what is happening in this epoch. What thought is given to think is not some deeply hidden "after-meaning" (Hintersinn) but rather something very obvious, in fact, the most obvious which we, because it is just that, have constantly been overlooking. Through this passing over (of the nearest) we constantly, without suspecting it, murder the Being of the Seiende" (Holzwege, pp. 245-46).

This means: Da-sein as "concern" (Sorge), which Heidegger subdivides into Existentiality, Factuality and Contingency, reveals itself as understanding, which is inherent in it. Whence should the world genuinely disclose itself to Da-sein if not from Da-sein? This faculty of understanding is an essential feature of Da-sein: the difficulty enters in when man has to do his own self-interpretation. But not only that; the "exterior" world is also entrusted to him as disclosable. However, this must not be interpreted in the sense that the "ego" is "producing" the world but rather in the sense that the Da-sein is the point where the world is becoming illuminated. This indicates that the structure of man must be such as to make possible something like the illumination and disclosure of the world.

In man there is the *Da-* and the *Sein*. The *Da* stands in a context of meaning which is "dis-closed" to it by sensibility and understanding. "As actual *Da-sein* it has already translocated its own potentiality of being into a possibility of understanding" (*Sein und Zeit*, p. 146).

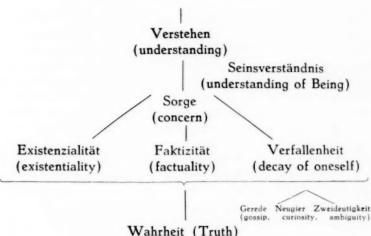
In Sein und Zeit the understanding still interprets from "below," from the hitherto accepted idea of man. This is why in that work the concept of transcendence still plays an essential role and especially so in the next treatise, Vom Wesen des Grundes (1929). Nevertheless, expressions like "Lichtung" (place of illumination) and "Gelichtetheit" (state of being illuminated) are used in order to characterize the disclosed state of the Da. In the Letter on Humanism all consideration for the hitherto accepted metaphysical notion of man has been dropped and the thinking proceeds from the "Being of Da-sein," metaphorically speaking, from "above." But this must not be misunderstood as referring to a spiritual breath, a pneuma. In order to prevent misunderstandings of this kind, in the Letter we find concepts such as "Ereignis" (occasion, event) which already refer to a change in Heidegger's way of thinking. During the time that elapsed between Sein und Zeit and the Letter on Humanism, Heidegger relinquished anthropological terminology and attempted to bring the new vision into its own appropriate, mostly poetic language: "That, however, the

Da-, the 'Lichtung' occurs as the Truth of Being itself, is the destiny of Being itself."

The understanding of Being, the self-understanding of man, is not an arbitrary decision of an ego; there is something in Da-sein itself which makes the understanding of Da-sein possible. In other words, the ego, the subject, is not the Da-sein. Da-sein is rather the understanding (Lichtung) where being "opens" itself and therefore "understanding" occurs. From this point of view, understanding finally takes over the entire human being and it becomes the illumination by which something like world — or Being — is made visible. Human beings are the "loci" of Da-sein. "In the 'Lichtung' of the Da, man dwells as one who ek-sists, as the one who is able to step out of himself." It is not difficult to "endow" man with Reason, Soul and Spirit if we construct him from Being as fact (Faktisch-Seiende), the creator of which was God in the Middle Ages and later on is Man himself.

It might be helpful to build up a scheme of man as he is described in Sein und Zeit:





Wahrheit (Truth)
which is the same as:
Entschlossenheit (disclosure)

What does the scheme indicate? It shows that out of the self-understanding character of our Da-sein, there arises a uniform tree with its branches. It starts with man being thrown into existence and ends with man disclosing truth. The existentialia are related to one another, and all ways of arranging them are related to one ground-structure. It is the self-analysis of Da-sein performed in the understanding of its own self - not, however, in order to affirm the subject but rather to arrive through Da - sein at Being, which would offer the starting point for a far more basic analysis in the second part of Sein und Zeit, which has never been published. The vocabulary that would be required to think man from the point of view of Being is lacking because our language has been formed by man as Subject. If there is such a vocabulary it may be found in original poets whose role is far more important than civilization in its self-imposed blindness is able to realize.

Man finds himself in the world as one who has been thrown into the world of things of concern and into concern for his fellow-beings (*Mitexistenzen*). Man is existence and therefore not an "I" that can think; he is existing in the mode of existence which becomes intelligible through the existentialia; at the same

time he is actually there (da) and also fallen a prey to the world (verfallen) from which first of all he "spells himself out." It is the Verfallenheit (non-authentic Da-sein) which makes man think of his Self-being (authentic Da-sein). The existentialia refer to one and the same immaterial process (the "Lichten"). This process floats in "Nothingness" (Nichts) and yet manifests itself visibly. It is a play of possibilities spread over the various branches and which unites in the single trunk: the disclosure of the Da. In Sein und Zeit the array was strictly carried through. But it seems as if a Nichts should be organized by way of tangibility: How can a "Lichtung" be differentiated if not by its edges? Towards the center every shape is dissolved in light and the differentiating marks may only be dimly perceived.

#### Ш

Heidegger's philosophy, having transcended the metaphysical borderlines and having penetrated into deeper than metaphysical regions, is exposed to the misunderstanding that it is not "exact research." As a counter-proof Heidegger in Sein und Zeit gave an exact presentation of the "Cartesian Ontology of the world" (p. 21), Reality (demonstration of the existence of the exterior world in Kant), the genesis of the vulgar conception of time (p. 81), and Hegel's interpretation of the relation between "Spirit and Time" (p. 82), not counting the constant references to the history of philosophy. Finally, in connection with a first elaboration of the second part of Sein und Zeit, Heidegger wrote his interpretation of the Critique of Pure Reason in Kant and the Problem of Metaphysics, which is dedicated to Max Scheler. In Holzwege (1950) appear Heidegger's discussion of Hegel in the essay Hegel's Concept of Experience and Der Spruch des Anaximander as well as the essays on Hölderlin. All these essays offer an unbroken view on the classical thought which today still determines our thinking.

Heidegger's philosophy is not a new, interesting "perspective" which takes its place beside Hegel, Kant or the Jewish-Hellenistic theology of Christianity. The "formal indication" of the idea of existence, Heidegger says, "was guided by the

Understanding of Being which lies in Dasein itself." (Sein und Zeit, p. 313). At any time Dasein, inasfar as it is (as Man), has already understood itself - whether mythically or magically in some kind of an interpretation. And one might call Heidegger's venture the hitherto boldest attempt to deepen this understanding until it reaches that region where Being reveals itself in man, and man finally appears to be world becoming world (weltende Welt). This means that man should be pulled into the light of intellectual experience with the aid of understanding. and at the same time to work on Da-sein with the same exactitude of thought as was spent on the Seiende after man had scientifically or metaphysically objectified his "World of Objects." It must always be remembered that all metaphysics thinks the Seiende only as an objectified entity, as that-what-is. Therefore it does not yet bring into attention what Heidegger experiences as Being. On the other hand, man, running the risk of self-annihilation, has succeeded in bringing under his domination that Seiende in which he himself insofar as he is body is participating. In the last analysis, therefore, it has been found that it is none other than metaphysics which has exposed man to the greatest self-endangerment. This explains what Heidegger means when in Sein und Zeit he attempts to overcome metaphysics. Heidegger's severe criticism of the history of philosophy is supposed also to demonstrate that the apparent tendency of metaphysics towards the Spirit, the transcendental Reason, the Divine, at heart always means the Seiende and not Being and is more or less unable to rid itself of this leading idea.

This does not prevent the orientation toward the Seiende from being counterbalanced by religious forces. But these forces have not been strong enough to stop this exclusive orientation. Once man finds himself constituted by the "existentialia" such as Time, Death, Understanding of Being, Being-in-the-world, he has overcome the Seiende and with it traditional metaphysics. This is not meant to invalidate physics. But physics is no longer the same as soon as its claim to truth ceases to point toward the Seiende as the ultimate authority, the Seiende in whatever guise it may appear. This orientation toward the Seinde is rooted in the subjectivity of man. The Subject makes

the objectification possible: the objective, matter-of-fact, scientifically minded man is suppressing a whole "world," the authentic one, in order to secure the world of objects as the field for his research.

Heidegger reproaches the modern age for being no longer concerned about the search for Truth but rather about the domination of Nature. According to Heidegger this development has been prepared already centuries ago through the abandonment of the original experience of Truth. The misinterpretation of Truth has led to the development of Western metaphysics and inasfar as theology has adopted this misinterpretation it has also helped to prepare the way for modern science. This might also serve as an explanation of the fact that after 2000 years of Christianity's efforts, its "Truth" has not penetrated, while technology as the last form in which metaphysics appears has begun its dominion over the whole earth. For, if man lived in the Christian Truth, the "Weltangst" (World-Dread) that technology might annihilate all kinds of physical life could not be explained.

Nothing has more misled the understanding of existential philosophizing than the doctrine of Da-sein as "Befindlichkeit" (condition of sensitivity). "Angst" being a basic condition of Da-sein, Heidegger was reproached by materialists as well as by metaphysicians of every stripe for teaching a philosophy of anxiety. As Angst confronts man with his original Nichts which in Heidegger has a positive meaning - the label was ready: Nihilism. In opposition to that, the vital optimism of the materialists who have succeeded in bringing the physical annihilation of man within the reach of possibility, made appeal to its own affirmative attitude, to constructiveness, to the "greatest happiness of the greatest number." The cause of the anxiety, however, is the absolute predominance of the Seiende (in matter) which determines partly or completely the idea of man, his culture, his values, his ethics, even his religion. The chief-engineer feels the inexorable presence of Western thought on his side and history shows that even man in the occidental world (not, e.g., in early China) has always been following this Western tendency. A change can only be effected from the very roots of this kind of thinking: all ethics, moral claims or humanitarian warnings lack the iron power which thinking can set against (materialistic) thinking. That means: if it could be demonstrated that the absolute claim to validity of our scientific thinking cannot be supported any longer then the "scientific" foundation of the chief-engineer, the "clear conscience" of Science will be shaken.

Welt-Angst as a state of human existence is possible only because Da-sein is not only in the way of understanding but also in that of "Mood" and "Tuned-ness" (Stimmung und Gestimmtheit). This other "key" to Da-sein is called by Heidegger "Befindlichkeit." Man, as soon as he is, has always been "attuned": this bears no psychological meaning, no experience. but in the Gestimmtheit we are confronted with the hard fact that we are here (da) and have to accept the burden of the definite-hereness (Nuneinmal-da-sein). We are held responsible for the Da behind which we cannot go farther back. This naked Da is as undeducibly evident as is the evidence of that which is simply there. But the Da must be there before what-is (Vorhandenes) can be discovered. Befindlichkeit is no "emotional state," for "experiences" are possible only "because the Da has already been disclosed in the Befindlichkeit" (Sein und Zeit, p. 136).

The power of Befindlichkeit reveals itself in great writing and poetry which does not occupy the reader's mind with subjective experiences, but has a divination of the enigmatic Da; it discloses Da-sein and therefore together with disclosures through understanding, thinking contributes its own poetic approach to Being. Here Heidegger has broken with one of the main evils of metaphysics, which knows only the epistemological approach, setting aside poetry as a conceptually "inexact" region of experience. Under the sovereignty of metaphysics to professional philosopher has no room for poetry; he leaves it to his colleagues of the philology department. Husserl even thought that eventually his phenomenology would make poetry superfluous since when it was completed everything would be

scientifically clarified. The totalitarian states, guided by Science, try to fit poetry as Zweckdichtung into their Weltbild, whereas the scientifically minded bourgeois world feels that the poet is an outsider, an "anarchist" as he is described by Thomas Mann in Tonio Kröyer and as he was seen by the bourgeois 19th century: he "embellishes" life but on the other hand is inconveniently in the way.

EGON VIETTA

Hamburg, Germany.

#### Announcements

The Eleventh International Congress of Philosophy will meet in Brussels during the month of August, 1953. Information about the suggested program is contained in a circular available upon request to the Secretary, Ch. Perelman, 32, rue de la Pêcherie, Uccle-Bruxelles, who will be glad to receive comments and proposals.

The new officers of the American Philosophical Association, Pacific Division: Georgiana Melvin, President; David Rynin, Vice-President; Herbert L. Searles, Secretary-Treasurer.

The new officers of the Southwestern Philosophical Conference: Hubert G. Ålexander, President; Edward S. Robinson, Vice-President; Ian P. McGreal, Secretary-Treasurer.

The new officers of the Metaphysical Society of America: Paul Weiss, President: Ellen Haring, Secretary; Constantine Cavarnos, Treasurer; W. H. Sheldon, W. E. Hocking, Iredell Jenkins, and E. S. Brightman, Councillors.

The new officers of the Iowa Philosophical Association: Neal W. Klausner, President; William L. Reese, Secretary-Treasurer.

The officers of the newly-organized Mississipi Philosophy Association: Q. M. Lyon, President; Ruth Body, Vice-President; Fred W. Neal, Secretary-Treasurer.

The new officers of the Mountain-Plains Philosophical Conference: Sterling McMurrin, Chairman; Archie J. Bahm, Secretary-Treasurer.

The new officers of the Southern Society for Philosophy and Psychology: John B. Wolfe, President; William M. Hinton, Treasurer; Willis Moore, Edward G. Ballard, and Karl M. Dallenbach, Council members. D. Maurice Allen continues as secretary.

The first number of a new periodical devoted to the philosophy of science has appeared, entitled *Philosophia Naturalis*, edited by Eduard May, Wilfried Stache, and Hermann Wein, and published by Westkulturverlag, Meisenheim/Glan, Germany.

Volume I of *Philosophical Studies*, the first Irish periodical devoted exclusively to philosophy, has just appeared. It is published by the Philosophical Society of St. Patrick's College, Maynooth, and edited by the Rev. J. D. Bastable,

The Mahlon Powell Lectures at Indiana University for 1951-52 will be given by Professor Richard McKeon of The University of Chicago.

Dr. Max Black, Professor of Philosophy in Cornell University, has been appointed Visiting Professor of Philosophy at the University of Washington for 1951-52.

Dr. Paul Weiss, Professor of Philosophy in Yale University, served as Professor of Philosophy in Hebrew University, Jerusalem, during part of the last semester.

The sequel to Philosophie: Chronique des années de guerre, 1939-1945, entitled Philosophie: Chronique des années d'après guerre, 1946-1948, 3 volumes, edited by Raymond Bayer, has appeared. These volumes contain contributions from collaborators in a number of countries and cover the major fields of philosophic inquiry.

The Institute for Social Research, Kronprinsengt 5, Oslo, Norway, offers a prize of 10,000 kroner for the best essay on the problem "The Relevance of Research to the Problems of Peace." Essays must be submitted in English or French before April 1, 1952. Manuscript (between about 70 and 150 pages) and statement of authorship must be enclosed in separate envelopes and both marked with a motto chosen for the essay.

#### **Books Received**

(Listing does not preclude a subsequent review)

Freedom and Reason. Studies in Philosophy and Jewish Culture. Edited by Salo W. Baron, Ernest Nagel, Koppel S. Pinson. New York: Conference on Jewish Relations, 1951. (Jewish Social Studies, Publications, No. 4). 468 pp. \$5.00.

Carola Baumgardt: Johannes Kepler: Life and Letters. With an introduction by Albert Einstein. New York: Philosophical Library, 1951. 209 pp. \$3.75.

Monroe C. Beardsley: Practical Logic. New York: Prentice-Hall. Inc., 1950. 580 pp. \$3.75.

Nicolas Berdyaev: Dream and Reality. An Essay in Autobiography. New York: The Macmillan Company, 1951. 332 pp. \$4.50.

Nicolas Berdyaev: Towards a New Epoch. London: Geoffrey Bles, 1949. 117 pp. 6s.

Walter Biemel: Le Concept de Monde chez Heidegger. Louvain: E. Nauwelaerts, 1950 (Philosophes Contemporains). 184 pp. \$1.20 (60 Fr. b).

S. T. Cargill: The Philosophy of Analogy and Symbolism. London: Rider and Company, 1951. 264 pp. 21s.

Rudolf Carnap: The Nature and Application of Inductive Logic. Consisting of Six Sections from "Logical Foundations of Probability." Chicago: The University of Chicago Press, 1951. 118 pp. \$1.25.

St. Thomas Aquinas on Aristotle's Love and Friendship (Ethics-Books VIII-IX). Translated by Pierre Conway. Providence, R. I.: The Providence College Press, 1951. 132 pp. \$1.50 (Paper); \$2.50 (Cloth).

Nehemiah Curnock: John Wesley's Journal. New York: Philosophical Library, 1951. 433 pp. \$3.75.

Hans Driesch: Lebenserinnerungen. Aufzeichnungen eines Forschers und Denkers in entscheidender Zeit. München/Basel: Ernst Reinhardt Verlag, 1951. 311 pp.

Margaret G. Dudas: Divine Atom. Boston: The Christopher Publishing House, 1950. 157 pp.

A Soviet History of Philosophy. Translated by William Edgerton. Washington, D.C.: The Public Affairs Press, 1950. 58 pp.

E. Finlay-Freundlich: Cosmology. Foundations of the Unity of Science, Vol. I, No. 8. Chicago: University of Chicago Press, 1951.

Essays on Logic and Language. Edited with an introduction by Anthony Flew, New York: Philosophical Library, 1950. 206 pp. \$3.75.

Alan Gewirth: Marsilius of Padua, The Defender of Peace. Volume 1: Marsilius of Padua and Medieval Political Philosophy. New York: Columbia University Press, 1951. 342 pp. \$4.75.

William D. Gould, George B. Arbaugh, R. F. Moore: Oriental Philosophies. 3d Edition, Revised. New York: Russell F. Moore Co., 1950. 220 pp. \$4.50.

G. F. Hartlaub: Bewusstsein Auf Anderen Sternen? Ein kleiner Leitfaden durch die Menschheitstraüme von den Planetenbewohnern. München/Basel: Ernst Reinhardt Verlag, 1950. 65 pp.

A. J. Heschel: Man Is Not Alone. A Philosophy of Religion. New York: Farrar, Straus & Young, Inc., 1951. 305 pp. \$3.75.

Johannes Hirschberger: Geschichte Der Philosophie. I. Altertum und Mittelalter. Freiburg: Verlag Herder, 1949. 475 pp.

The Indian Philosophical Congress. (Silver Jubilee Commemoration Volume). Madras & Bangalore: E. Sendall at the Associated Printers, 1950. 311 pp.

Emmanuel Leroux and Andre Leroy: La Philosophie anglaise classique. Paris: Librairie Armand Colin, 1951. 214 pp. 200 fr.

The Works of George Berkeley, Vol. IV. Edited by A. A. Luce and T. E. Jessop. London and Edinburgh: Thomas Nelson & Sons Ltd., 1951. 264 pp. 30s.

Stéphane Lupasco: Le principe d'antagonisme et la logique de l'énergie. Paris: Hermann & Cie, 1951. 135 pp.

H. V. Martin: The Wings of Faith. A consideration of the nature and meaning of Christian faith in the light of the work of Soren Kierkegaard. New York: Philosophical Library, 1951. 132 pp. \$2.75.

Charles Mayer: Man: Mind or Matter? Boston: The Beacon Press, 1951. 168 pp. \$2.50.

Frederick Mayer: A History of Ancient and Medieval Philosophy. New York: American Book Company, 1950. 546 pp. \$5.00.

Frederick Mayer: A History of Modern Philosophy. New York: American Book Company, 1951. 657 pp. \$5.25.

Rudolf Metz: A Hundred Years of British Philosophy. Translated by J. W. Harvey, T. E. Jessop, Henry Stuart. Edited by J. H. Muirhead. (Second Impression). New York: The Macmillan Company, 1950. 828 pp. \$5.25.

Maurice Natanson: A Critique of Jean-Paul Sartre's Ontology. Lincoln: The University of Nebraska Press, 1951. (University of Nebraska Studies, New Series No. 6). 136 pp.

Joseph Owens, C.Ss.R.: The Doctrine of Being in the Aristotelian Metaphysics. Toronto: Pontifical Institute of Medieval Studies, 1951. 461 pp. \$5.00.

John Cowper Powys: Rabelais. New York: Philosophical Library, 1951. 424 pp. \$3.75.

Sir C. V. Raman: The New Physics. New York: Philosophical Library, 1951. 144 pp. \$3.75.

Eberhard Rogge: Axiomatik Alles Moglichen Philosophierens. Meisenheim/Glan: Westkulturverlag Anton Hain, 1950. 240 pp.

Lionel Ruby: Logic. An Introduction. Chicago: J. B. Lippincott Company, 1950. 496 pp.

H. E. Runner: The Development of Aristotle Illustrated from the Earliest Books of the Physics. Amsterdam: J. H. Kok N. V. Kampen, 1951. 160 pp.

Ruth Lydia Saw: The Vindication of Metaphysics. A Study in the Philosophy of Spinoza. New York: The Macmillan Company, 1951. 173 pp. \$2.00.

Kurt Schilling: Geschichte der Philosophie. Erster Band. Die Alte Welt. Das christlich-germanische Mittelalter. München/Basel: Ernst Reinhardt Verlag, 1951. 455 pp.

Paul Siwek, S. J.: The Philosophy of Evil. New York: The Ronald Press Company, 1951. 226 pp. \$3.50.

I. K. Stephens: The Hermit Philosopher of Liendo. Dallas, Texas: Southern Methodist University Press, 1951. 402 pp. \$5.00.

D. T. Suzuki: Living by Zen. London: Rider and Company, 1950. 187 pp. 15s.

D. T. Suzuki: Manual of Zen Buddhism. London: Rider and Company, 1950. 192 pp. 15s.

Hugh S. Taylor: Religious Perspectives of College Teaching in the Physical Sciences. New Haven: The Edward W. Hazen Foundation, 1951, 35 pp.

Father William Tiverton: D. H. Lawrence and Human Existence. With a foreword by T. S. Eliot. New York: Philosophical Library, 1951. 140 pp. \$3.00.

Stephen Ullman: Words and Their Use. New York: Philosophical Library, Inc., 1951. (Man and Society Series). 108 pp. \$2.75.

Hume: Theory of Politics. Edited by Frederick Watkins. Edinburgh: Thomas Nelson and Sons, Ltd, 1951. xxx + 246 pp. 7s 6d.

Selections from the Works of Aristotle. Edited, translated, with an introduction by Philip Wheelwright. New York: Odyssey Press, 1951. 336 pp. \$2.00.

W. P. D. Wightman: The Growth of Scientific Ideas. New Haven: Yale University Press, 1951. 495 pp. \$5.00.

Heinrich F. Wolfe: Philosophy for the Common Man. New York: Philosophical Library, 1951. 189 pp. \$3.50.

Hume: Theory of Knowledge. Edited by D. C. Yalden-Thomson. Edinburgh: Thomas Nelson & Sons, Ltd, 1951. xxvii + 265 pp. 7s 6d.

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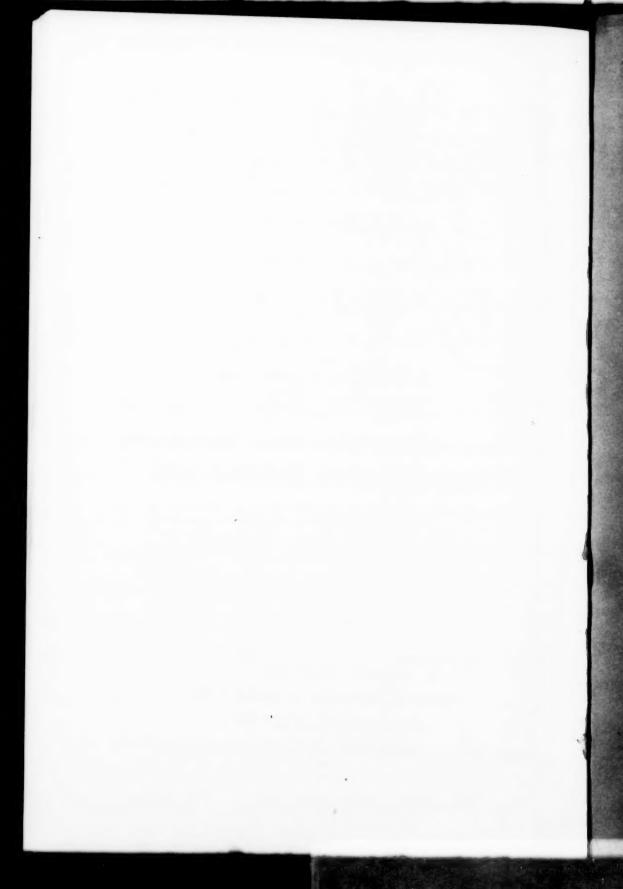
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